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HAND BOOK

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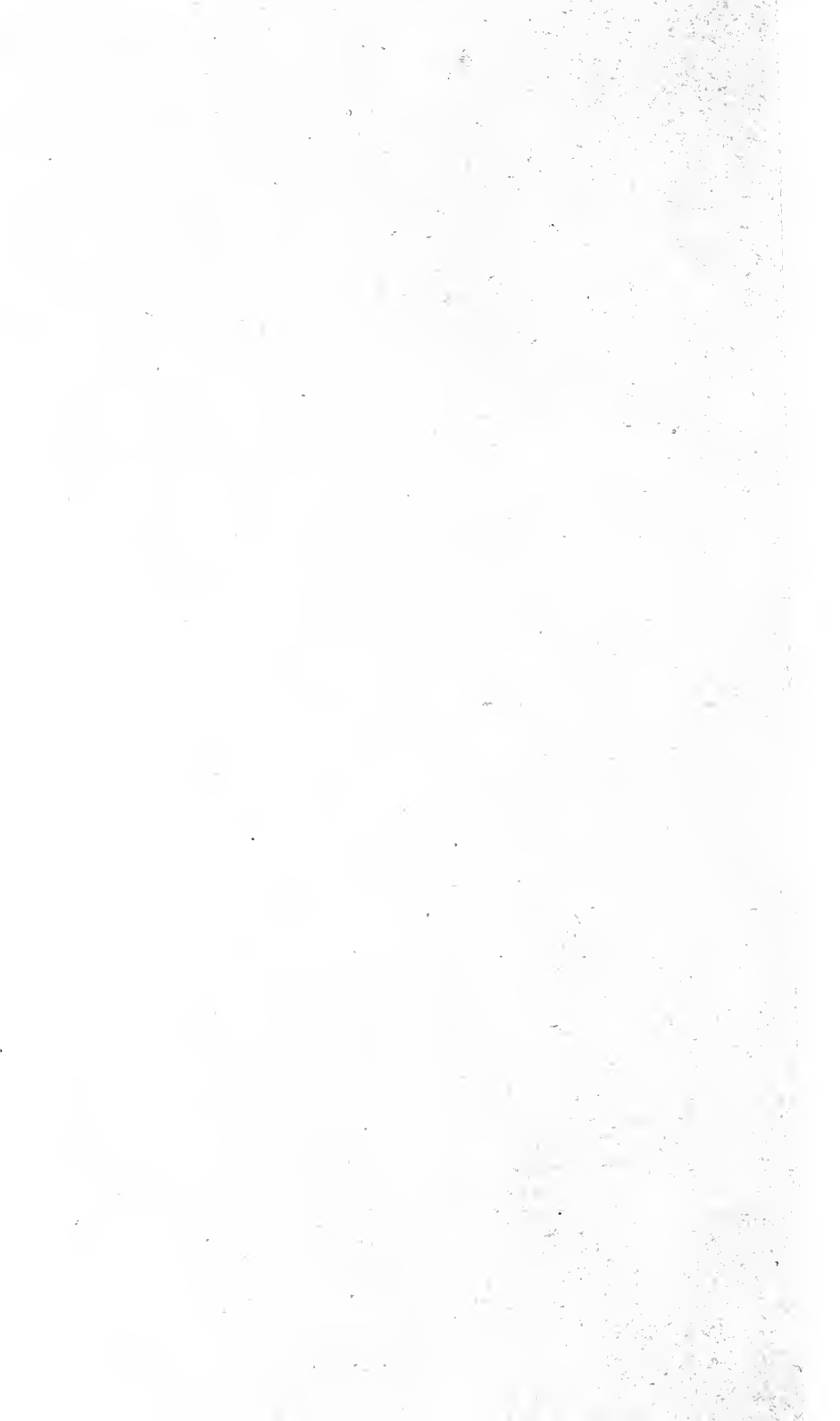
Detroit Junior High Schools



Published by the

BOARD OF EDUCATION

1916-1917



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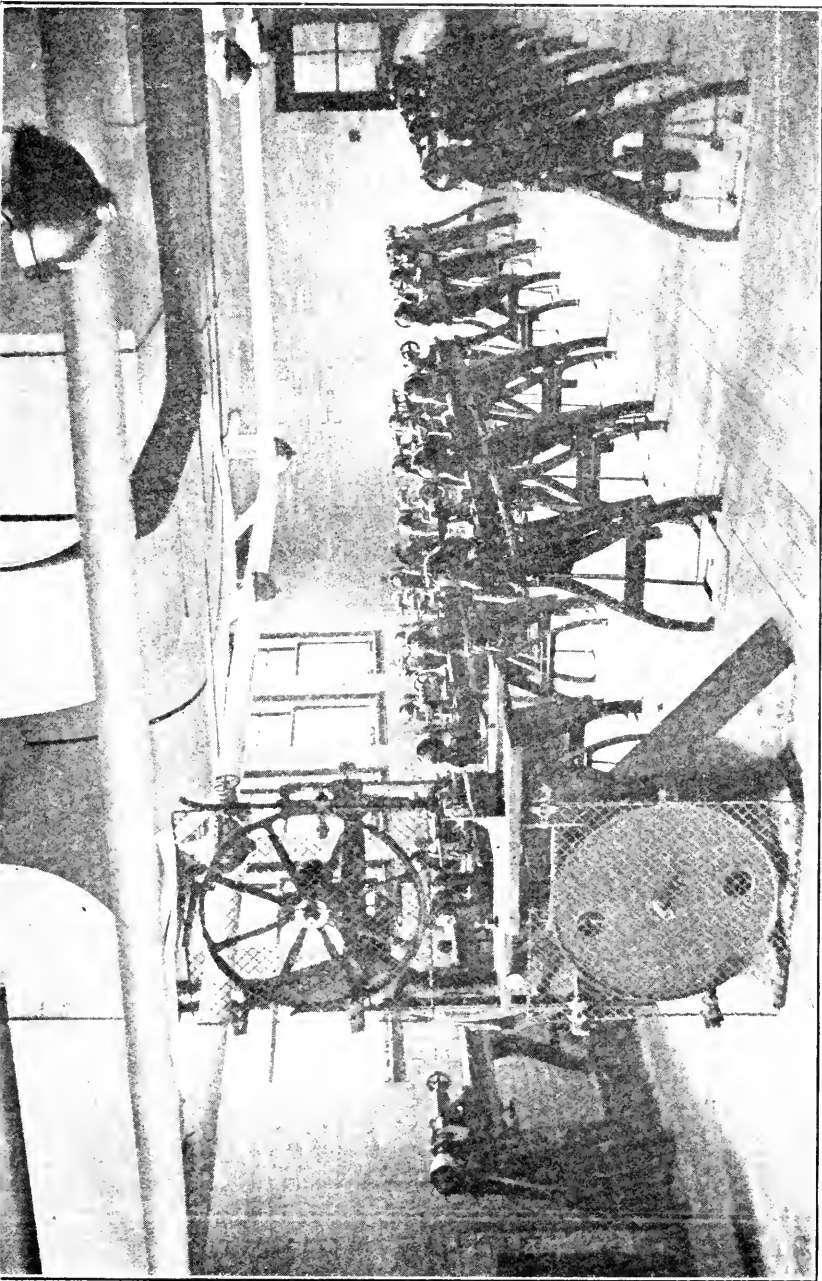


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THE FUNCTION OF THE JUNIOR HIGH SCHOOL

The junior high school is based on the assumption that the physiological and psychological time to enter upon secondary school work is at the beginning of the seventh grade rather than at the beginning of the ninth. The reasons for this assumption are coming to be more and more generally accepted by school administrators as legitimate. Briefly, these reasons may be stated as follows:

Six years of work in the elementary schools have enabled the pupil to acquire the "tools of knowledge." He can write legibly, can read ordinary English understandingly, and can add, subtract, multiply and divide. He is twelve years old.

This is for most pupils the beginning of adolescence. It is the time of readjustment. New visions, new aspirations and hopes spring into existence at this time in the child's development. Life broadens. Individuality asserts itself and conscious reasoning looms large on the mental horizon. Everywhere there is change. So in school there is need of a shift from the ordinary methods of procedure of the elementary school if the varying needs are to be met adequately.

The function of the junior high school is to meet this new situation and to give the pupil a maximum amount of knowledge and training in a minimum of time. The school organization is adapted to fit the varying needs of the pupils by offering differentiated courses. Unnecessary reviews are eliminated. The work is new,—there is no rehash of work already gone over. It is vital because it is what the pupil wishes to do or is able to master. Given varied interests, abilities, and needs, there must be provided different types of work, and this work must be related to and interwoven with real life activities.

Each subject is taught by a specialist. Each pupil instead of having one has as many as six or seven different teachers. The departmental arrangement stimulates better effort because the pupil feels he must satisfy each one of his instructors. The teaching is better since no teacher, no matter how versatile he may be, is able to teach a half dozen subjects, unrelated for the most part, as well as he can teach the one subject of his choice. The junior high schools are supplied, as a rule, with teachers specially chosen for their particular lines, and they are of superior educational qualifications and training.

The junior high school economizes time. This is true whether the pupil is preparing for higher education or for some specific calling in life. If he expects to go to college this plan will enable him to enter from a half to a full year earlier than formerly. If he must drop out of school he has profited by some specific training. He is somewhat better prepared to earn a livelihood.

Promotion is by subject, not by grade. If a boy fails to pass in his language he may take it over next semester; he need not repeat the whole grade. This fact tends to lessen retardation and to hold pupils in school. The number leaving at the end of the eighth grade and at the end of the compulsory period has greatly diminished under the junior high plan. Pupils seem disposed to finish the three-year cycle before leaving school. Many more are ready to enter the senior high because transition is made easy. Articulation between the two schools is close. Attendance in the three upper grades is thus also increased.

The ultimate aim of all school work is to make good citizens. In order to be good citizens and to get the most out of life people must be useful both to themselves and to others. Happiness results from doing something well. The peculiar province of the junior high school is to offer something which each boy and each girl can do well. The pupil has the opportunity of choosing academic work; he should so choose if his

talents lie in that direction. On the other hand, there are many who waste their time trying to do those things for which they are not by nature fitted. They should give their time to some other kind of work. That work may be something more definite—work of practical utility—commercial or industrial. At no point in the course, however, is the pupil denied the privilege of going on with higher education, no matter what kind of work he may have chosen. The road leading upward is closed to no one. Moreover no time is lost—a fact made possible by the flexibility and close correlation of courses.

By way of summarizing it may be said that the reorganization resulting in the establishment of the junior high school, while not proving a panacea for all the ills of our educational system, has gone a long way toward the accomplishment of the following results:

- (1) Better provision is made for individual differences, abilities, and tastes through differentiated courses.
- (2) Better preparation for life is provided for those who have to leave school early.
- (3) Opportunities are given for reforms leading to better teaching in the seventh and eighth grades.
- (4) Articulation between the elementary and the high school is closer; transition is easier.
- (5) The number of pupils eliminated from the school system is greatly reduced.
- (6) Time is saved for practically all students.
- (7) Retardation is reduced.
- (8) Promotion is by subject.
- (9) There is a better school spirit and greater interest in the work on the part of both pupils and teachers.

THE CHOICE OF A COURSE

The pupil upon entering the junior high school should consider very carefully the course of study he is to pursue. The choice of the right course is a matter of fundamental importance. Each pupil should decide deliberately after having talked the matter over earnestly with his teachers and parents, should try to determine the kind of work he can do best, and should consider the aims of such work in reference to his probable future activities. The work in which he finds greatest satisfaction, the work in which he can excel, is, generally speaking, the work he should elect.

The feeling of satisfaction that comes from the consciousness of work well done is in itself a great reward. School work will be worth while to any one if a feeling of worthy achievement can be experienced in the doing of that work. For some pupils this feeling arises from the mastery of the classics, mathematics, and the languages. For others it will come from, or attend, the study of commercial subjects,—bookkeeping, typewriting, and shorthand. Still others will find their best efforts to be along the line of manual training and household arts; to them woodwork, mechanical drawing, shop work, or cooking, sewing, dressmaking, and millinery will appeal. Each one should choose to do the kind of work he, his teachers, and his friends think he can do best.

It is necessary to choose from the standpoint of personal preference and fitness; it is likewise advisable to choose with reference to one's expectations as to future profession, occupation, or trade. The length of time a pupil expects to be able to remain in school is an important factor. Those who must leave early should elect a course that bears directly upon the earning of a livelihood. Those who have reasonable expectations of finishing the high school work, and possibly of going to college, should consider carefully the academic courses.

That there is as much cultural value in doing one kind of work as another, provided it be well done, is a claim that has been made by educators for a long time. Evidence seems to indicate that this conviction is growing among experts. The real test of value is in the doing. Good work in the industrial course is attended with as much dignity as good work in one of the academic courses. It should be recalled that no one having chosen the commercial or industrial course is thereby shut off from the possibility of continuing his education through the high school and college should the opportunity offer.

A course once started should be continued through the three years of the junior high school, or until the cycle is completed. This is an added reason why the matter of careful selection should be regarded as important.

ADMISSION AND GRADUATION

Pupils completing the work of the sixth grade in schools contiguous to a junior high school are, with the advice and consent of the Superintendent of Schools and under his direction, eligible for admission to that school.

A student who has completed satisfactorily the work outlined in any one of the five courses shall, upon completing that work, be entitled to graduation from the junior high school, and to a diploma which shall entitle him to enter the first semester of the senior high school or the second year of the four year high school. A student may have gained a maximum of twenty hours of credit which he is permitted to apply toward graduation from the senior high school.

The advanced credit gained in the junior high school shall not exceed twenty hours. A student having gained twenty hours of advanced credit may apply those credits toward his one hundred twenty (120) hours of required

work of the last three years of the high school. A pupil completing the English course will have earned ten hours of advanced credit in English. A pupil completing three years of Latin will have earned ten hours of advanced credit in Latin. The same condition obtains in regard to the German course. A pupil taking two years work in Algebra will have gained five hours of advanced credit. Likewise any boy or girl having done satisfactorily the work outlined in Manual Training or Household Arts in the above three courses will have gained five hours of advanced credit.

SCHOOL RECORDS

A record of the work done by each pupil in the junior high school is kept on an individual record card in the principal's office file. It is to the interest of each pupil to inspect his card at regular intervals. The card shows both the kind of work pursued and the quality of the work done. Excellent work is marked 1; 2 indicates good work; a mark of 3 is fair or passing; 4 indicates poor or non-passing work. The record on a card, English 2-J/1, indicates that the pupil to whom the card belongs has achieved the highest marking in his second semester's work in English. Latin 6-J/3 indicates that the pupil has passed in his last semester Latin in the junior high school. History 3-J/2 designates a mark of "Good" in the third semester of history. The letter C indicates a condition. The condition must be removed before the pupil can go on with the work of the next semester in the given subject.

COURSES OF STUDY

IN THE DETROIT JUNIOR HIGH SCHOOLS

Five courses of study are offered in the junior high schools. They are the English course, the German course, the Latin course, the Commercial course, and the Industrial course. Each of these courses covers three years of work. As in other schools each year consists of two semesters of twenty weeks each. There are in reality therefore six grades in the junior high school instead of three.

The various courses are as follows:

ENGLISH COURSE

First year		Second year		Third year	
English	5	English	5	English	5
Literature	5	Literature	5	Literature	5
Mathematics (Arithmetic)	5	Mathematics (Algebra)	5	Mathematics (Algebra)	5
History	5	History 8-B and		Manual Training or	
Physical Ed.	2	Gen'l Geog. 8-A	5	Domestic Science and	
Music	2	Physical Ed.	2	Domestic Art	4
Drawing	2	Music	2	Physical Ed.	2
Manual Training or		Drawing	2		
Domestic Science and		Manual Training or			
Domestic Art	4	Domestic Science and			
		Domestic Art	4	ELECT ONE:	
				Ancient History	5
				Physiography	5
				Drawing	5
				and	} 7
				Music	

GERMAN COURSE

First year		Second year		Third year	
Literature	5	Literature	5	English	5
German	5	German	5	German	5
Mathematics (Arithmetic)	5	Mathematics (Algebra)	5	Mathematics (Algebra)	5
History	5	History 8-B and		Physical Ed.	2
Physical Ed.	2	Gen'l Geog. 8-A	5	Manual Training or	
Music	2	Music	2	Domestic Science and	
Drawing	2	Drawing	2	Domestic Art	4
Manual Training or		Physical Ed.	2		
Domestic Science and		Manual Training or			
Domestic Art	4	Domestic Science and			
		Domestic Art	4	ELECT ONE:	
				Literature	5
				Ancient History	5
				Physiography	5
				Drawing	5
				and	
				Music	2

LATIN COURSE

First Year		Second year		Third year	
Literature	5	Literature	5	English	5
Latin	5	Latin	5	Latin	5
Mathematics (Arithmetic)	5	Mathematics (Algebra)	5	Mathematics (Algebra)	5
History	5	History 8-B and		Physical Ed.	2
Physical Ed.	2	Gen'l Geog. 8-A	5	Manual Training or	
Music	2	Music	2	Domestic Science and	
Drawing	2	Drawing	2	Domestic Art	4
Manual Training or		Physical Ed.	2		
Domestic Science and		Manual Training or			
Domestic Art	4	Domestic Science and			
		Domestic Art	4	ELECT ONE:	
				Literature	5
				Ancient History	5
				Physiography	5
				Drawing	5
				and	
				Music	2

COMMERCIAL COURSE

First Year		Second year		Third year	
English	5	English	5	English	5
Literature	5	History 8-B		Bookkeeping	10
History	5	and		Typewriting	5
Mathematics	5	Gen'l Geog. 8-A	5	Physical Ed.	2
(Arithmetic)		Bookkeeping	5		
Physical Ed.	2	Physical Ed.	2		
Music	2	Music	2		
Drawing	2	Typewriting	5		
Manual Training		Com'l Arith.	3		
or		and			
Domestic Science		Pen. & Spl.	2 5		
and				ELECT TWO:	
Domestic Art	4			Literature	5
		ELECT ONE:		Shorthand	5
		Literature	5	Algebra	5
		Manual Train.		Manual Training	
		or		or	
		Domestic Science		Domestic Science	
		and		and	
		Domestic Art	4	Domestic Art	4

INDUSTRIAL COURSE

First Year		Second year		Third year	
English	5	English	5	English	5
Mathematics	5	Mathematics	5	Mathematics	5
History	5	History 8-B		Manual Training	
Manual Training		and		or	
or		Gen'l Geog. 8-A	5	Household Arts	10
Household Arts	10	Manual Train.		Drawing	5
Drawing	5	or		Physical Ed.	2
Physical Ed.	2	Household Arts	10		
Music	2	Drawing	5		
		Music	2		
		Physical Ed.	2		
				ELECT ONE:	
				Literature	5
				Physiography	5

THE STUDY OF ENGLISH

The parallel courses in Constructive English and Literature outlined below are based on the labors of the National Committee on the Reorganization of Secondary English. This committee, which was originated by the National English Association at Boston in 1910, has its work so far completed that the United States Commissioner of Education is publishing a volume containing its conclusions. The scope and value of this work will be such that no school can afford to be without a copy. The nature of the report may be inferred from its table of contents, which is as follows: (1) The Movement for Reorganization; (2) The New Point of View; (3) Aims and General Character of the Course; (4) The Principal Activities of the Course; (5) Representative Courses as Used in Typical Communities; (6) General Reading; (7) The Library; (8) Classroom Equipment; (9) Administrative Problems; (10) Articulation with the Elementary School; (11) Separation of the Teaching of Composition and the Teaching of Literature; (12) Distribution of Pupils; (13) Extra Classroom Activities; (14) Preparation of Teachers; (15) Cooperation of Other Departments; (16) Measure of Attainment; (17) Economy of Time; (18) Differentiation of Courses.

English really comprises two subjects, expression and appreciation, or, as they are usually described, composition and literature. These are superficially related but involve radically different pedagogical methods. In the following course of study they are accordingly separated.

The aim of composition teaching is self-expression. Its subject matter is the whole body of the pupil's ideas, emotions, and aspirations. Its medium is the English language. It therefore touches life everywhere but touches literature only in so far as literature affords models of expression. In other words, the teacher of composition must go to life for matter, to literature for manner.

Composition includes several subsidiary subjects, among them being grammar, rhetoric, oral expression, written expression (which includes spelling, punctuation, and capitalization), business English, oratory, debating, typewriting, and printing. It is best taught by the following cycle of processes: (1) The gathering of material; (2) The arrangement of material; (3) Oral composition; (4) Written composition; (5) Revision; (6) Publication; (7) The reaction that follows publication. The outcome should be the power to speak and write English with fluency, precision, and grace.

To attain this end even approximately is, however, impossible without the cooperation of all teachers in all subjects. Carelessness in speech or writing should be tolerated in no department of the school, pupils who are deficient in these respects should be reported to their composition teachers, and composition teachers should teach pupils how to recite and how to make reports in other subjects.

The aim of literature teaching is to confer on pupils the power to understand the ideas, emotions, and aspirations of others. Its medium, like that of composition, is the English language. It therefore touches life everywhere but touches composition no more than does biology or history. In other words, the place of composition in the literature class is precisely the same as in the biology or history class, which is merely to deepen and clarify impressions.

Like composition, literature includes several subsidiary subjects, among them being the history of literature, reading both silent and oral, oral discussion, written discussion, declamation, dramatization, and dramatic presentation. It is best taught by the following cycle of processes: (1) Preparation of a background; (2) Silent reading; (3) Class reading or discussion; (4) Written reports or reviews; (5) Some form of debate or dramatization. The outcome should be enthusiasm,

inspiration, a desire for more. The study of literature is a failure in so far as it does not make readers.

At the end of the sixth grade pupils should be able: (1) To express clearly and consecutively, either in speech or writing, ideas which are familiar; (2) To avoid gross grammatical errors; (3) To compose and mail a letter; (4) To spell their own vocabulary; (5) To read silently and after one reading to reproduce the substance of a simple story, news item, or lesson; (6) To read aloud readily and intelligently simple news items, lessons from text books, or literature of such difficulty as "The Ride of Paul Revere" or Dickens's Christmas Carol; (7) To quote accurately and understandingly several short poems, such as Bennet's "The Flag Goes By," and Emerson's "The Mountain and the Squirrel."

CONSTRUCTIVE ENGLISH COURSES

ENGLISH 1-J

GRAMMAR—Ten Weeks. Four days a week. A knowledge of English grammar is a prerequisite to all sure use of the language either oral or written, and to all sure understanding of the ideas of others. Pupils on coming to the junior high school should know subject and verb. As fast as learned the principles should be applied to pupils' speech and writing.

Weeks

Topics

- 1- 2 Nouns—classification as common and proper.
- 3- 4 Personal pronouns—recognition and declension.
- 5- 6 Verbs—tense—no principal parts, or distinctions between regular and irregular, transitive and intransitive verbs to be taught.
- 7- 8 Adjectives—recognition—adverbs ditto.
- 9-10 Prepositions and conjunctions recognized.

COMPOSITION—Ten Weeks. Four days a week. The aims are: (1) To cultivate power of observation and imagination; (2) To develop sentence sense; (3) To improve spelling; (4) To teach punctuation.

Weeks	Topics
11-12	Stories of vacation, recreation, and outings.
13-14	Descriptions of scenes familiar to the writer.
15-16	Explanations of things made by the pupil.
17-18	Details of work done in other classes, outside of school, or in vacation.
19-20	Imaginary sketches, such as "What the Lamp Post Saw" or "The Adventures of a Penny."

Notes

(1) Good suggestions as to method, and full lists of topics by grades, are to be found in a pamphlet on "The Conduct of Composition Work in Grammar Schools," by Henry C. Clapp and Katherine W. Huston. D. C. Heath & Co.

(2) The general principle to be kept in mind is that of unity of aim and variety in the exercises tending to accomplish this aim.

(3) Motives for composition work should be sought in the life of the school and of the community. A letter written to a pupil who is kept at home by sickness and who wants to know what is going on at school; an address in favor of a candidate for a school office; a debate on a question of local interest which is being discussed in the newspapers,—such topics help to vitalize the work.

(4) Oral discussion and the framing of a brief outline should usually precede the writing of themes. Criticism should be constructive, and should point out merits as well as faults. In pupil-criticism it is particularly necessary to require this.

(5) Composition work should be socialized. The pupil should write with a definite audience in mind, and as far as possible, his work should be presented to the class. Class criticism should in a large measure take the place of teacher criticism. If the purpose of writing

is made clear in the assignment, and if the general aims are kept before the class, they can criticize a theme very successfully, and the reaction upon the writer is more marked than when the criticism comes from the teacher.

(6) Blackboard work should be a prominent feature of the recitation. These exercises should be brief enough to allow many to be written and criticized within the recitation period. The use of colored chalk to indicate mistakes is effective.

(7) In oral and written work keep before the pupils the conception of the sentence as a unit. Combat the common practice of making an oral composition a series of statements linked by "ands."

(8) It is the duty of the school to make a determined effort to overcome bad spelling. The study of a spelling book is open to many objections. To send a pupil to a dictionary when he makes a mistake merely shows him how the word is spelled; it does not teach him to spell it. His mistake is due to a blurred or wrong mental image of the word. To correct this it is necessary to make the right image familiar. The misspelled word should be rewritten in its correct form slowly and carefully and copied into a note book, which the teacher inspects from time to time, testing the pupil upon his list.

(9) As an aid to increasing the vocabulary the dictionary should be frequently used. This may be supplemented by the study of word lists selected by the teacher from the books studied.

(10) Short selections should be read and reread aloud until they are practically memorized. Skill in expression and facility in the use of words may thus be cultivated very effectively.

ENGLISH 2-J

GRAMMAR—Ten Weeks. Four days a week. Aims as before.

Weeks	Topics
1- 6	Words: Subject, predicate, object, and predicate nominative, whether word, phrase, or clause.
7- 8	Clauses as group elements not containing subjects and verbs.
9-10	(1) Phrases as group elements not containing subjects and verbs. (2) Review.

COMPOSITION—Ten weeks. Four days a week. Aims: (1) As before; (2) Mastery of letter forms.

Weeks.	Exercises
11-16	Letters. (a) Form of business letter to be mastered. (b) Social letters. Exchange with pupils of another school. (c) Stationery.
17-20	Reports on books read outside of class. Use of Heydrick's Reading Reports (Scott, Foresman) recommended.

ENGLISH 3-J

GRAMMAR—Ten Weeks. Four days a week.

Weeks	Topics
1- 2	Nouns: (a) Common and proper; (b) Person taught; (c) Inflection of all except most difficult words.
3- 5	Pronouns: (a) Personal, interrogative, adjective, and relative. (b) Inflection.
6-10	Verbs: (a) The idea of person and number developed; (b) Voice; (c) A few paradigms presented by way of illustration; (d) Participles and infinitives. (No classification of verbs necessary).

COMPOSITION—Ten weeks, four days a week.

Weeks	Topics
11-12	Simple expositions on local and civic questions.
13-14	Descriptive themes on imaginary journeys.
15-16	Themes on characters admired by pupils.
17-18	Imaginary conversations between historical characters.
19-20	Descriptions of work in other classes.

The aims of the composition work in the second year of the junior high school are to develop in the pupil an understanding of his social environment, to secure flexibility and variety of sentence structure, and to continue the pursuit of the misspelled word. Punctuation should be emphasized as the outward and visible sign of inward grammatical grace.

ENGLISH 4-J

GRAMMAR—Ten Weeks. Four days a week.

Weeks	Topics
1- 2	Review.
3- 4	Adjectives and adverbs; comparison and classification.
5- 6	Prepositions and phrases.
7-10	(a) Conjunctions and clauses; (b) Simple, complex, and compound sentences.

COMPOSITION—Ten weeks. Four days a week.

Weeks	Topics
11-12	Simple arguments on school topics.
13-14	How to make things.
15-16	How to find things or go to various places.
17-18	How various contrivances work.
19-20	Accounts of visits to factories and museums. The aims are: (1) Keep to the point; (2) Be courteous; (3) Clearness of expression; (4) Close observation.

ENGLISH 5-J

COMPOSITION—Twenty Weeks. Five days a week. Mostly letter writing. The minimum attainment for passing is the ability to write business and social letters correct in form and free from errors in spelling, punctuation, and grammar. Special attention will be given to penmanship. No pupil will be promoted to English 6-J who is deficient in any of these respects. Students in higher courses may be demoted to course 5-J whenever their use either in or out of the English class shows a deficiency in the work of courses 5-J. In detail the work of the course is as follows:

Weeks**Topics**

1. Composition—Definition.
2. Letter Writing—Excuses for Absence.
3. Letter Writing—Excuses for Tardiness.
4. Letters of Friendship—Your School.
5. Proof Reading.
6. The Correction of Themes.
7. Letters of Friendship—Your Day.
8. Letters of Friendship—Your Year.
9. Letters of Invitation.
10. Order Letters.
11. Letters of Application.
12. **Vade Mecum** of Catechism.
13. Kinds of Composition.
14. Description.
15. Description—A Building.
16. Description—A Town.
17. Description—A Person.
18. Narration.
19. Narration—The Wit of Children.
20. Exposition.

Note 1. In weeks 2 and 3 are taught forms to be used throughout the pupil's school career. In practice these will not be accepted unless they are letter perfect.

Note 2. In addition, each pupil will keep written minutes of each recitation and will be prepared to read them whenever called on. The rest of the class will criticize these and the writer must be ready to defend his work.

Note 3. Models are dictated and corrected as a regular exercise throughout the year.

Note 4. Exceptionally weak pupils are required to recite twice daily.

Note 5. Every English class is organized as a club and at frequent intervals holds meetings for the presentation of programs.

Note 6. One day a week is devoted to oral composition throughout the high school course. Material will be found in the work done in other classes and in such dignified current periodicals as *The Outlook*, *The Literary Digest*, *The World's Work*, and *The Review of Reviews*. The primary object is to teach the pupils to present what they have to say with clear enunciation and a proper regard for diction and organization. The secondary object is to reenforce the work of other classes. The teacher of other subjects will reciprocate by refusing to accept written or oral work that is deficient in English.

ENGLISH 6-J

GRAMMAR—Twenty Weeks. Five days a week. The textbook is used as a hand book; a book of letters, poems, or short stories is used for grammatical dissection; and each pupil is required to make a catechism covering the fifty most essential points of the subject.

COURSES IN LITERATURE

LITERATURE 1-J

CLASS READING—Twenty Weeks. Four days a week. As many or as few books should be read as seems wise to principals and teachers. The following schedule is, however, suggested as a desirable minimum;

Weeks	Books
1- 6	From Longfellow: <i>Skeleton in Armor</i> ; <i>Wreck of the Hesperus</i> ; <i>Excelsior</i> ; <i>Bridge</i> ; <i>The Day is Done</i> ; <i>Walter von der Vogelweid</i> ; <i>Clock on Stairs</i> ; <i>Arrow and Song</i> ; <i>Building of Ship</i> ; <i>Sandalphon</i> ; <i>Leap of Roushan Beg</i> , etc.
7-10	From Whittier: <i>Maud Muller</i> ; <i>Barefoot Boy</i> ; <i>Skipper Ireson's Ride</i> ; <i>Barbara Fritchie</i> ; <i>In School Days</i> , etc.
11-20	<i>Evangeline</i> .

Among other desirable reading for first year classes are classic, northern, and mediaeval myths such as are found in:

1. J. Baldwin's "Hero Tales Told in School."
 "The Golden Fleece."
 "Story of Siegfried."
 "Stories of Roland."
 "Stories of the King."
2. E. K. Baker's "Stories of Old Greece and Rome."
3. W. M. L. Hutchinson's "Golden Porch."
 "Sunset of the Heroes."
 "Orpheus with His Lute."
 "World's Springtime."
4. H. W. Mabie's "Norse Stories."

The aim of all high school literature study is to lead pupils to read eagerly and appreciatively books of as high an order as possible. The result should be an immediate and ultimate development of their mental, moral,

emotional, and aesthetic powers. In other words, the study of literature should cultivate high ideals of conduct, stimulate the imaginative and emotional faculties, form appreciation centres about which fresh facts will tend to gather in the future, broaden the mental horizon, both geographically and historically, give a delightful introduction through the simpler works of great writers to their subtler masterpieces, improve the pupil's powers of expression by energizing his thought, and fix in memory a considerable body of suitable poetry and prose.

HOME READING—Books are to be selected from this list for voluntary individual reading at home. Each pupil should read not less than five of these during the year.

- | | |
|------------------|--|
| 1. Alcott | Little Women, Little Men, Jo's Boys, Eight Cousins, Rose in Bloom. |
| 2. Brown | Rab and his Friends. |
| 3. Barrie | Peter and Wendy. |
| 4. Dix | Marylips. |
| 5. Ewing | Jan of the Wind-Mill, Flat Iron for a Farthing. |
| 6. Dodge | Hans Brinker. |
| 7. Field, Eugene | Christmas Tales and Christmas Verse. |
| 8. Griswold | Deering of Deal. |
| 9. Goss | A Life of Grant for Boys. |
| 10. Hasbrouck | A Boy's Parkman. |
| 11. Hawthorne | Grandfather's Chair |
| 12. Herbertson | Heroic Legends. |
| 13. Jordan | The Story of Joan of Arc. A Tale of the Mist Islands. |
| 14. Land | The Story of Matka. |
| 15. Lee, Mary C. | A Quaker Girl of Nantucket. |

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| 16. Lucas | Slow Coach. |
| 17. Moore, N. H. | Deeds of Daring Done by Girls. |
| 18. Nicolay | Boy's Life of Abraham Lincoln. |
| 19. Ollivant | Bob, Son of Battle. |
| 20. Pyle | Otto of the Silver Hand. |
| 21. Ramee | A Dog of Flanders, The Nurnberg Stove. |
| 22. Richards | Captain January. |
| 23. Seawell | A Virginia Cavalier. |
| 24. Spyri | Heidi, Heimatlos. |
| 25. Swift | Gulliver's Travels (expurgated). |
| 26. Tappan | In the Days of Queen Victoria. |
| 27. Thompson-Seton | Bibliography of a Grizzly, The Trail of the Sandhill Stag, Two Little Savages. |
| 28. Trowbridge | Cudjo's Cave. |
| 29. Wiggin | Bird's Christmas Carol, Polly Oliver's Problem. |
| 30. Wright | The Gray Lady and the Birds. |

LITERATURE 2-J

CLASS READING—Twenty Weeks. Four days a week. See Literature 1-J, above.

Weeks

Titles

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| 1- 8 | The Arabian Nights. |
| 9-12 | Kipling's Jungle Books. |
| 13-16 | Lamb's Tales from Shakespeare. |
| 17-20 | Stevenson's Treasure Island. |

HOME READING—Literature 1-J continued. Five books in addition to those read during the preceding semester.

LITERATURE 3-J

CLASS READING—Twenty Weeks. Four days a week.

Weeks	Books
1- 6	American Anthology, including: Bryant's "Waterfowl"; Lanier's "Chattahoochee"; Saxe, Riley, and Field in selections.
7-12	Holmes: "Old Ironsides," "Last Leaf," "My Aunt," "Height of Ridiculous," "The Boys," "Chambered Nautilus," "Contentment," "One Horse Shay," "Broomstick Train," "Dorothy Q," "Spectre Pig," "Oysterman," etc.
13-20	"Seven Champions of Christendom," "Christmas Carol," or "Sketch Book."

Among other books suitable for reading in this course are the following:

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| 1. Hale | Man Without a Country. |
| 2. Kipling | The Kipling Readers (Appleton). |
| 3. Longfellow | Tales of a Wayside Inn. |
| 4. Macaulay | Lays of Ancient Rome. |
| 5. Swester, K. D. | Ten Boys and Girls from Thackeray.
Ten Boys and Girls from Dickens. |
| 6. Warner | A Hunting of the Bear. How I
Killed a Bear. Camping Out. |

HOME READING—About five of the following books should be read by each student during the second year of the junior high school:

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| 1. Andrews | The Perfect Tribute. |
| 2. Bullen | The Cruise of the Cachalot. |
| 3. Burnett | The Secret Garden. |
| 4. Clemens | Prince and Pauper. |
| 5. Cooper | The Deerslayer. The Pilot. |

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| 6. | Davis | Stories for Boys. |
| 7. | De Amicis | An Italian School Boy's Journal. |
| 8. | Dix | Soldier Rigdale. |
| 9. | Doubleday | Stories of Invention. |
| 10. | Doyle | Micah Clarke. |
| 11. | Duncan | Adventures of Billy Topsail. |
| 12. | Eastman | Indian Boyhood. |
| 13. | Eggleston | Hoosier Schoolmaster. |
| 14. | Fouque | Undine. |
| 15. | Hale, E. E. | A New England Boyhood. |
| 16. | Halsey | The Old New York Frontier. |
| 17. | Harris | Nights with Uncle Remus. |
| 18. | King | Cadet Boys. |
| 19. | Lang | The Book of Romance. |
| 20. | Larcom, L. | A New England Girlhood. |
| 21. | Laurie | School Days in Italy.
School Days in France. |
| 22. | Liliencrantz | The Thrall of Lief, the Lucky. |
| 23. | Lincoln | A Pretty Tory. |
| 24. | London | The Call of the Wild. |
| 25. | Montgomery | Anne of Green Gables.
Anne of Avonlea. |
| 26. | Morris | The Sundering Flood. |
| 27. | Parkman | Montcalm and Wolfe.
Conspiracy of Pontiac. |
| 28. | Pyle | The Story of King Arthur. |
| 29. | Rice | The Champions of the Round Table.
Sir Launcelot and his Companions. |
| 30. | Rice | Mrs. Wiggs of the Cabbage Patch. |
| 31. | Scott | The Talisman. |
| 32. | Seaman | Jacqueline of the Carrier Pigeons. |
| 33. | Shart | A Watcher in the Woods. |
| 34. | Warner | Being a Boy. |

LITERATURE 4-J

CLASS READING—Twenty Weeks. Four days a week.

Weeks**Topics**

- 1- 6 Macaulay's "Horatius."
 7-12 "Captains Courageous" or "Kidnapped."
 13-20 "The Merchant of Venice" or "Julius Caesar."

HOME READING—See above list. Reading of five additional books required in this course.

LITERATURE 5-J

Twenty Weeks. Four days a week.

I. Class room work: Palmer's *Odyssey*; David Copperfield; and one of Shakespeare's plays—"Julius Caesar," "A Midsummer Night's Dream," or "Coriolanus." Goal—Presentation on the stage.

II. Home reading and reports: Rapid reading of five good books suited to the pupils' tastes—record to be kept in Heydrick's record book. This exercise will be continued throughout the school course. Excellent suggestions as to books suitable for reading will be found in the "Report of the Committee upon Home Reading," published November, 1913, by the National Council of the Teachers of English. The following books are suitable for the reading of ninth grade pupils, and should be owned by all high school libraries, the starred titles being particularly desirable:

Fiction

Alcott	Little Women*
Anonymous	Arabian Nights
Carroll	Alice in Wonderland
Clemens	Huckleberry Finn*
	Tom Sawyer*
Cooper	Any Novel*
Crane	The Red Badge of Courage

Defoe	Robinson Crusoe*
Dickens	Christmas Stories
	Great Expectations
	Nicholas Nickleby
	Old Curiosity Shop
	Oliver Twist*
Doyle	Sherlock Holmes*
	The White Company
Harris	Uncle Remus
Hawthorne	Twice Told Tales
Hughes	Tom Brown's School Days
Irving	Sketch Book
	The Tales of a Traveller
Kipling	Captains Courageous*
	Jungle Books*
Lamb	Tales from Shakespeare†
London	Call of the Wild*
Lytton	The Last Days of Pompeii
Martin	Emmy Lou*
Ollivant	Bob, Son of Battle
Ouida	The Dog of Flanders
Poe	The Gold Bug*
Porter	Freckles*
Pyle	Robin Hood
Scott	Abbot
Seton-Thompson	Lives of the Hunted*
	The Trail of the Sandhill Stag*
Stevenson	David Balfour*
	Treasure Island*
Swift	Gulliver's Travels
Verne	Mysterious Island Series*
	Round the World in 80 Days*

Drama

Maeterlinck	The Blue Bird*
Shakespeare	As You Like It*
	Hamlet
	Henry IV.
	Henry V*
	Julius Caesar*
	King Lear
	Macbeth
	Merchant of Venice
	Midsummer Night's Dream*
	Tempest*
	Twelfth Night

Poetry

Coleridge	The Rime of the Ancient Mariner*
Homer	The Iliad
	The Odyssey
Longfellow	Collected Poems
Macaulay	Lays of Ancient Rome*
Stevenson	A Child's Garden of Verse
Whittier	Poems

Biography

Flynt	Tramping With Tramps
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Adventure

Seton-Thompson	Wild Animals I Have Known
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LITERATURE 6-J

Twenty Weeks. Four days a week. Study of red-letter American authors, the aim being to teach a few facts about their lives, and to read rapidly, not critically, some of their writings that are at once big, simple, and brilliant.

Weeks	Authors	Suggested Reading
1- 2	Franklin (1706-1790)	Autobiography
3- 4	Irving (1783-1859)	The Legend of Sleepy Hollow
5- 6	Emerson (1803-1882)	Concord Hymn
7- 8	Longfellow (1807-1882)	Tales of a Wayside Inn
9-10	Whittier (1807-1892)	Snow-bound
11-12	Lincoln (1809-1865)	Gettysburg Address
13-14	Holmes (1809-1891)	Grandmother's Story
15-16	Poe (1809-1891)	The Gold Bug
17-18	Lowell (1819-1891)	The Vision of Sir Launfal
19-20	Mark Twain (1835-1910)	Huckleberry Finn

HOME READING—As in Literature 5-J, above.

ORAL ENGLISH.

In addition to the four periods allowed each week to constructive English, one period each week is allowed in each class to oral composition.

In addition to the four periods allotted each week to the study of literature, one period each week is allotted in each class to the oral interpretation of literature. The aims are: (1) Self possession; (2) Voice culture; (3) The spiritual growth which follows the mastery of masterpieces. The following poems are studied, learned by heart, and declaimed:

Course 1-J

Months	Poems	Authors
1.	America	Smith
2.	The Star Spangled Banner	Key
3.	Marco Bozzaris	Halleck
4.	The American Flag	Drake
5.	Thou too sail on, O Ship of State	Longfellow

Course 2-J

1.	God Give Us Men!	J. G. Holland
2.	The Snow	R. W. Emerson
3.	The Children's Hour	H. W. Longfellow
4.	Winter	Alfred Tennyson
5.	Today	Thomas Carlyle

Course 3-J

1.	The Chambered Nautilus	O. W. Holmes
2.	Blenheim	Robert Southey
3.	The First Snowfall	J. R. Lowell
4.	In School Days	J. G. Whittier
5.	Columbus	Joaquin Miller

Course 4-J

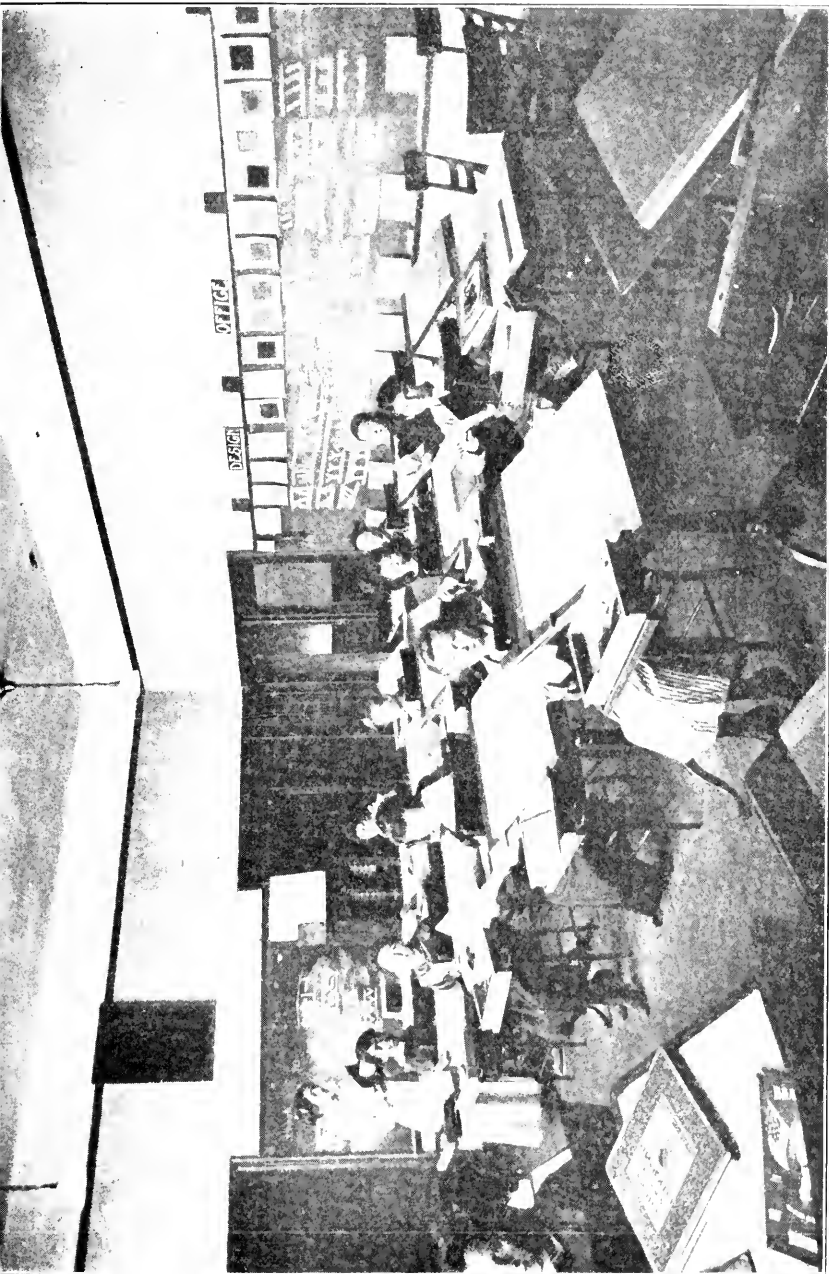
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|--------------------|---------------|
| 1. Voluntaries | R. W. Emerson |
| 2. Psalm 23 | Bible |
| 3. Little Breeches | John Hay |
| 4. The Raggedy Man | J. W. Riley |
| 5. Concord Hymn | R. W. Emerson |

Course 5-J

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|--------------------------------|------------|
| 1. The Builders | Longfellow |
| 2. The Boys | Holmes |
| 3. "Breathes there a man" | Scott |
| 4. Daffodils or Cavalier Tunes | Wordsworth |
| 5. Abou Ben Adhem | Hunt |

Course 6-J

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|------------------------------|------------|
| 1. Psalm of Life | Longfellow |
| 2. Selections from Snowbound | Whittier |
| 3. Old Ironsides | Holmes |
| 4. The Raven | Poe |
| 5. My Captain | Whitman |



APPLIED DESIGN ROOM

GERMAN

A three-year course in German is offered in the junior high school. The general aim is to give in these three years a comprehensive and thorough course adapted to the needs and capacities of younger pupils. The work done is not necessarily the same as that offered in the ninth and tenth grades of the regular high school, but is the equivalent in every essential respect. A pupil completing the course will have earned two units of advanced credit, or twenty hours.

The more specific aims of the course may be stated as follows:

1. To initiate the pupil into the vocabulary of every-day life and also to give him a glimpse into classical German literature.

2. To create in the pupil a feeling for the German language, whether spoken, heard or read, and to develop in him a certain fluency in the use of simple, every-day German.

3. To fix a correct pronunciation.

4. To broaden the pupil's knowledge of Germany and the German people.

The natural or conversational method of presentation with a large element of the dramatic is recommended for use with the young people who are here being introduced to the language. The work must be made interesting and natural. German is a living language and pupils should be made to live it. The teacher should speak and read constantly in German, interpreting by gesture, facial expression, and drawings. All the conversation of the class should be carried on in German, pupils being required to ask and answer questions in German. Since jingles, poems, and songs appeal to children, a clever use of them will create a quickening interest in the recitation. Pictures and objects should be made the basis for conversation from the very beginning,

while the dialogue and the story should furnish material for development as the class advances.

The following suggestions should be kept constantly in mind:

1. German must be the language of the classroom. The ideal always to be sought is the constant using and hearing of good German.

2. The printed text is necessary but it must remain subordinate to the spoken language; the pupil must be trained first by the ear, then by the eye.

3. In the classroom conversation the teacher's questions must be answered always by complete sentences.

4. A limited amount of concert recitation is valuable, largely in order that self-conscious pupils may be given more confidence.

5. The oral translation of German into English should be limited in amount.

6. Correct pronunciation should be taught thoroughly from the beginning. Every lesson should be presented by the teacher and no mistake in a pupil's pronunciation should remain uncorrected. Teachers should bear in mind the great value of drill in beginning a foreign language.

7. German geography, history, and institutions should be systematically presented,—as supplementary material if the text selected makes no provision for these subjects.

It is neither desirable nor necessary to teach as much formal grammar in this course as is given in courses I to IV in the four-year high schools, nevertheless a certain amount must be given, both for its own value, and in order to make the course lead easily to German V for the students who pass on to the senior high school. But at all times the ideal of keeping the class in living

touch with the language in order that a usable vocabulary and a store of idiomatic phrases and expressions may be acquired, must be kept in the foreground.

The grammar work, especially in the first year, is taught inductively. Students are required to memorize certain correct forms which illustrate grammatical points without committing formal rules. It is advisable to present in this way the essentials of verb and pronoun inflection, also the lists of prepositions and conjunctions. Naturally there are differences of opinion among teachers as to the details to be worked out in connection with this method of treatment. However, two principles should be kept in mind, namely:

(1) No formal grammar should be presented to the pupil until he has become familiar with the concrete use of the same.

(2) Grammatical explanations should be simplified to the last degree for pupils of the first and second years, and if possible never rules, but well-chosen phrases or sentences illustrating rules should be memorized.

Writing German is an important part of the pupil's training and should be required frequently, at least three times a week. These exercises should be short. In the first year this work is all done in class, the pupils either writing as the teacher dictates or answering questions or reproducing stories that first have become familiar through conversation or reading. In the second year the composition work is somewhat increased and frequently it must be prepared before class. A small amount of English into German composition may be assigned in German 4-J, but it must be based upon material that first has been treated orally. In courses 5-J and 6-J the amount of this kind of composition work is slightly increased, work being assigned regularly, perhaps once a week.

It is desirable that pupils become familiar with German script early in the study of the language.

It seems advisable, in view of the rather heavy program of the first year, that no outside preparation be required in the German work. In the second year, German 3-J and 4-J, the teacher may require the equivalent of two hours per week, i. e., in time about half a period of preparation for each recitation. In the third year, German 5-J and 6-J, the pupil is expected to spend on the average three-quarters of an hour in the preparation of each lesson.

The benefits to be derived from memorizing German proverbs, rhymes, and poems are too numerous and generally accepted to require enumeration. The recommended text books contain an abundance of material and the teacher can easily omit and add from other sources as seems desirable. The following poems are the minimum requirement:

Heidenröslein.

Du bist wie eine Blume.

Lorelei.

Erlkönig.

Die wacht am Rhein.

In the outline of courses below the necessary oral work and memorizing is assumed for all courses. The same is true of all necessary written composition. In the reading and grammar work each school will need to determine for itself the order in which topics are to be taken up and to some extent the emphasis to be placed upon different phases of the work. The order will be governed somewhat by the reading texts selected and by the class of pupils. The following outline is suggested:

GERMAN 1-J

READING —Für Kleine Leute, the first half of the book, or Deutsches Lese und Sprachbuch
—Book I.—Müller.

GRAMMAR—Phrases and sentences illustrating:
The four cases.

These can be simplified and called:

1. Case of subject.
2. Case of possession.
3. Case of indirect object and
object of prepositions:

in
auf
mit
von

4. Case of direct object.

Definite Article

Indefinite Article

(Singular to be
emphasized)

dieser
jener
welcher
kein
mein
dein
sein
ihr

Prepositions:

in, auf, mit, von, with dative case.

Cardinal Numerals

Time of Day

Present and Perfect Tenses of,
sein, haben, and five weak verbs.

GERMAN 2-J

READING —Für Kleine Leute, completed,

or

Deutsches Lese und Sprachbuch—
Book II.

- GRAMMAR—Words inflected as *der* (*dieser*), etc.
 Words inflected as *ein* (*kein*), etc.
 Use of “you” and “your.”
 Present and Perfect Tenses of *werden* and
 five strong verbs.
 Future, Perfect, Pluperfect, and Impera-
 tive of:
 haben
 sein
 five weak verbs
 the strong verbs *gehen* and
 kommen.
 Personal Pronouns
 Prepositions:
 An, *in*, *auf*, with both dative and
 accusative.
 Während, with genitive case.
 Aus, *nach*, with dative case.
 Durch, *für*, with accusative case.
 Inverted Word Order
 Strong and Weak Noun Declensions
 A very general and simple survey.

GERMAN 3-J

READING —Jung Deutschland, Lessons 1-65

- GRAMMAR—Indicative and Imperative of: *haben*, *sein*,
 werden, ten weak verbs, ten strong
 verbs.
 Adjective Declension
 Ordinal Numerals
 Fractionals
 Possessive Form of Names of Persons,
 Cities, and Countries.
 All Prepositions Governing: Genitive,
 Dative, Accusative, and Dative and
 Accusative.

GERMAN 4-J

READING —Jung Deutschland, Lessons 66 to 87.

GRAMMAR—Mixed, Irregular, and Foreign Nouns.

Relative Pronouns.

Interrogative Pronouns.

Comparison of Adjectives.

Verbs with Separable and Inseparable
Prefixes.

Irregular Weak Verbs.

Reflexive Verbs.

Modal Auxiliaries.

Conjunctions—Coordinating and Subor-
dinating.

Transposed Word Order.

GERMAN 5-J

READING —Review Jung Deutschland or read one of
the following:

Easy German Conversation—Allen &
Phillipson.

Im Vaterland—Allyn & Bacon.

German Life—Allen (Holt).

GRAMMAR—Subjunctive and Conditional Modes.

Declension of Nouns—Uses.

GERMAN 6-J

READING —Selections from one or more of the fol-
lowing:

Gluck Auf.

Im Vaterland.

Easy German Conversation.

German Life.

GRAMMAR—Grammar Review—Vos Essentials.

Note: It must be remembered always that the above outline of grammatical work is to be covered with the constant aid of the teacher, in an easy and interesting manner, rather than as a mere formal grammatical study.

LATIN

The work in Latin is taken up at the beginning of the first semester and continued through three years. It is assumed that a foreign language is acquired more easily if begun at this time than if taken up two years later. If a thorough knowledge and feeling for Latin is to be approximated it is necessary to begin early and to make the study vital and interesting. The best way to accomplish this is to use the conversational or direct method.

The aim is so to familiarize students with Latin that expression in the language may become familiar to them, then, upon that foundation to build a scientific knowledge of the structure of the Latin tongue. The following brief outline is followed in so far as possible, but is subject to change as experience dictates. It does not follow that students are expected to master in a formal way all the subjects and grammatical forms presented to them. These topics and forms are presented and discussed by the teacher. Gradually the students acquire them and are able to use them. Actual experience with the class the first semester modifies the plan for the second, and so on through the course.

By doing the work of Latin 1-J to 6-J inclusive, the student is prepared to take up the work of Latin V in the four year high school. He has thus gained twenty hours of advanced credit.

LATIN 1-J

VOCABULARY—At least 150 words learned accurately.

ORAL WORK —The greater part of the work is oral Latin.

All explanations, discussions, questions, and answers are given in Latin. This is the aim and is to be approximated as nearly as possible.

READING

In Latin—Ten short stories, fables, etc., or half that number of longer ones—about six pages of solid reading matter. Pupils should be able to read ordinary prose in Latin without difficulty.

TRANSLATION—Much less stress is put on translation than on the ability to read the Latin and to ask and answer, in Latin, questions on the text.

WRITING

Short sentences illustrating words learned, with their modifications and constructions; brief descriptions of familiar objects; materials taken from the text; dictation of words, sentences, and short paragraphs.

GRAMMAR

In the first year the student should become more or less acquainted with the following grammatical forms:

PARTS OF SPEECH

NOUNS—Accusative, Genitive, and Dative cases, singular and plural; all declensions.

PRONOUNS—Personal, also possessive and demonstrative used always with nouns in cases taught.

ADVERBS—A certain number—at least twelve—chiefly those derived from adjectives.

PREPOSITIONS—A few of most common which govern accusative case.

NUMERALS—Up to 100.

CONJUNCTIONS — INTERJECTIONS—Sufficient to give connection and interest to the stories.

VERBS — Imperatives, Infinitives, Present and Perfect tenses, Active Voice only, of about thirty verbs of all conjugations, together with a few irregular verbs, as, "ire," "dare," "volo," etc.

SYNTAX—Very little save the use of Infinitive in Indirect Discourse—this to be taught early in the course and constantly used.

LATIN 2-J

VOCABULARY At least 200 new words.

ORAL WORK Greater part of work is in oral Latin. All explanations, discussions, and answers are given in Latin, in so far as possible. This is the aim. It may be approximated.

READING IN LATIN—Eleven short fables, stories, etc., or six longer ones, i. e., about seven pages of solid reading matter. Pupils should now read without very much mispronunciation.

TRANSLATION—More stress upon translation than in Latin 1-J, but the emphasis is placed upon the ability to read Latin and to ask and answer, in Latin, questions on the text.

WRITING	Short sentences illustrating words learned, with their modifications and connection; brief paraphrases of material taken from texts read; original narrative in very simple form; dictation of words, sentences and paragraphs.
GRAMMAR	<p>PARTS OF SPEECH.</p> <p>NOUNS—All cases—all declensions.</p> <p>PRONOUNS—All pronouns.</p> <p>ADJECTIVES—Always taught in connection with nouns; comparison.</p> <p>ADVERBS—Formation and comparison.</p> <p>PREPOSITIONS—A few governing the Ablative and all the common ones governing the Accusative.</p> <p>NUMERALS—Cardinals and ordinals to 100.</p> <p>CONJUNCTIONS—All the co-ordinating, and, as well, dum, etsi, quamquam, antequam and cum.</p> <p>VERBS—Complete. Nouns; syntax of cases. Verbs.</p> <p>SYNTAX—Expression of purpose, wish, cause, time, condition and concession.</p> <p>Syntax, nouns—Syntax of Accusative and Dative cases.</p> <p>Verbs—Syntax of Moods in independent sentences, i. e., Volative subj., etc.; clauses of purpose, result and cause.</p>

LATIN 3-J

ORAL WORK	All explanations, discussions, questions and answers are given in Latin. Much oral paraphrasing of matter read, with interchange of comment between pupil and teacher and between one pupil and another.
READING	Nutting—First Latin Reader, or selections from the lives of Nepos, or selections from Caesar's Gallic War, to the same amount.
WRITING	Brief paragraphs founded on stories read or upon discussions in class; dictation of sentences and of short paragraphs.
GRAMMAR	Continued drill in etymology and syntax. Syntax, nouns—Syntax of Genitive and Ablative cases. Syntax, verbs—Complete Syntax. Temporal and Substantive Clauses; Conditional Sentences.

LATIN 4-J

ORAL WORK	Continued as in Course 3-J.
READING	Caesar, Book I, Chapters 1-29; Book II; Fabiles Faciles for easy review. Stress upon oral paraphrasing and discussion, in Latin.
WRITING and DICTATION	WRITING is based on a text book in Latin composition. DICTATION is taken from matter already read in class.

LATIN 5-J

ORAL WORK	Continue as in 3-J and 4-J.
READING	Caesar, Book I, Chapters 30 to end; Books III and IV.
WRITING and DICTATION	Text book on Composition continued. Dictation from Book V of Caesar; then dictation, after being written out in a notebook, should be care- fully corrected.

LATIN 6-J

ORAL WORK	Syntax is the subject of oral discus- sion, and to it a portion of every hour should be given throughout the year. There should now be no difficulty in putting together Latin sentences. Consult Elsaesser Lin- guam Discito Lingus.
READING	Common Language; Consult Elsaes- ser: Nos in Schola Latine Loqui- mur. Articles in current Latin publications will furnish much ma- terial. Palaestra of Arcadius Avellanus for additional material.
WRITING	Text on Latin Composition rapidly reviewed, supplemented by mate- rial dictated by teacher.

ARITHMETIC

MATHEMATICS 1-J AND 2-J

The course in mathematics for the junior high schools contemplates one year of arithmetic followed by two years of algebra or bookkeeping. In consideration of the fact that the study of arithmetic is terminated one year earlier than heretofore it becomes imperative that the topics in this subject taught in the first year or seventh grade be selected with due care and discrimination. In choosing and eliminating topics the demands of practical everyday life outweigh those of formal discipline. For the vast majority of pupils, if not for all, it is highly essential that the work of the schools should be related as intimately as possible to the work of life. Society expects the pupil to carry with him from school that which will make him socially effective. It does not require familiarity with a wide range of topics in arithmetic, but it does anticipate a working knowledge of a few fundamental facts.

Therefore numerous subjects and topics which have traditionally found a place in the study of arithmetic are eliminated from this course. Even some of those topics which have always been held to be practical, because they deal with real activities, are omitted, because textbook methods of making these computations are so foreign to those in actual use in life that the teaching of those topics is believed to be not worth while.

While the course in arithmetic is planned to meet the needs of the academic student who may pursue his course through the high school, it is hoped that it may be sufficiently flexible and adjustable to meet the special demands of pupils who may choose, or who may find it necessary to specialize in commercial or industrial lines.

It is expected that the list of subjects selected, with judicious adaptation and elaboration on the part of the teacher, may meet the requirements of those pupils whose major interest is in commercial work. It should also be possible for teachers so to correlate the teaching of arithmetic with the industrial work, that in a measure at least the problems arising in the industrial classes shall furnish illustrative material for the arithmetic class and conversely that the principles taught in the arithmetic class shall find practical application in the shops and industrial classes.

In working out this course the generally accepted conviction is followed that there are many topics in arithmetic which have little or no bearing on life and which may very well be omitted. Experts in education agree that those things that best prepare for life are also best for discipline. For this reason practical problems and practical subjects are scheduled for this course.

With some good text in the hands of the pupils the essential part of that which is usually designated as seventh and eighth grade arithmetic is taken up and completed in one year. For drills in rapidity and accuracy it is well to have at hand some practical, up-to-date business or commercial arithmetic. The following topics are presented as the work of the first year or seventh grade:

Addition, subtraction, multiplication, and division—rapidity and accuracy emphasized. Practice in reading and writing numbers. Checking results.

Some attention is given to those short methods generally used in the fundamental operations.

Fractions—addition, subtraction, multiplication, and division—fractions of reasonable complexity—large denominators to be avoided—least common denominator taught only as an incident to addition and subtraction.

Cancellation

Review of decimals with emphasis on division. Apply to United States money.

Bills and Accounts—problems that deal with daily business life are emphasized. Object—familiarity with ordinary business procedure, neatness, and accuracy.

Practical Measurements—lengths, solids, surfaces. Such topics as plastering, painting, papering, carpeting, lumbering, etc., entirely optional.

Percentage—various cases—its application to profit and loss, insurance, discounts, duties and customs.

Interest—ordinary applications, omitting annual and compound—Use bank method of computing interest—promissory notes—short problems in partial payments.

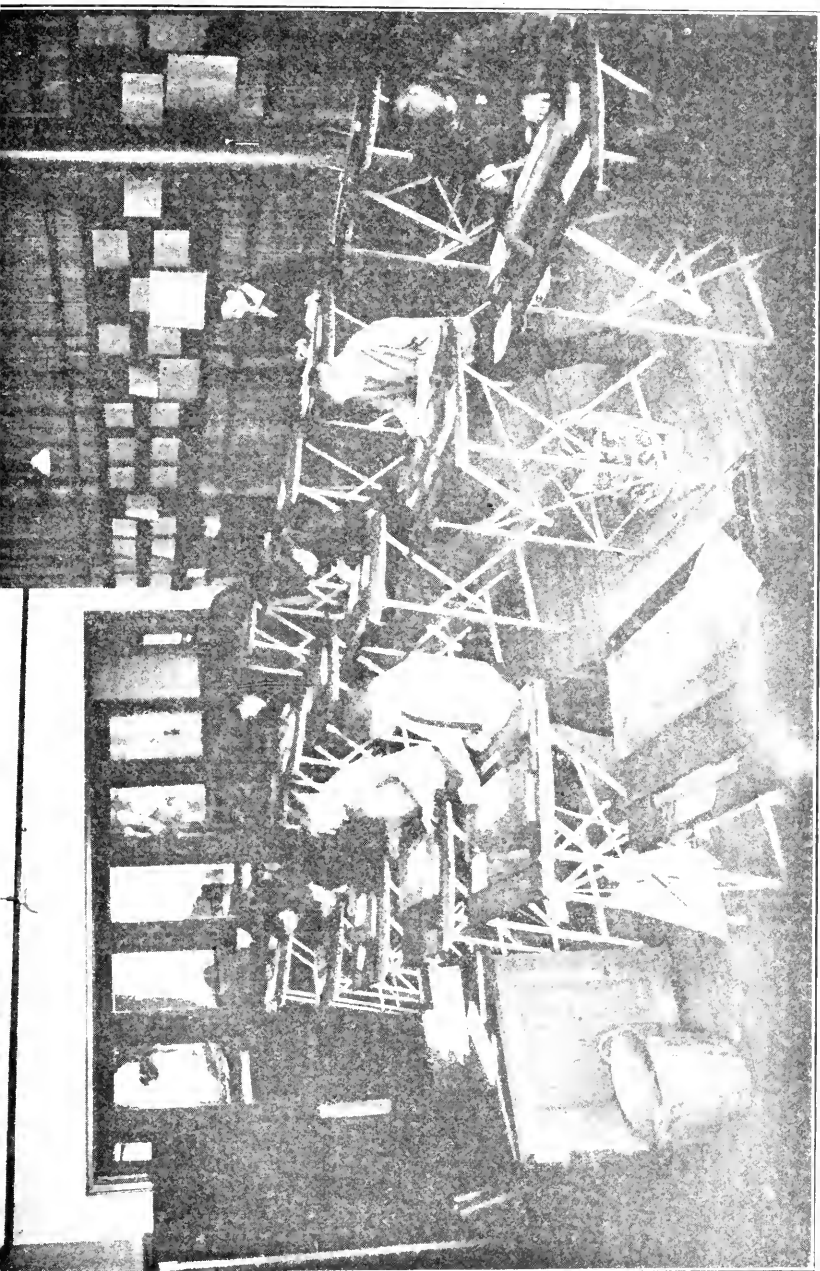
Bank Discount.

Savings Accounts.

Local and State Taxes.

Ratio and Simple proportion.

Mensuration—Square Root (optional).



MECHANICAL DRAWING ROOM

ALGEBRA

MATHEMATICS 3-J to 6-J INCLUSIVE

The work in algebra in the junior high school covers two years, the second and third, or the eighth and ninth grades. Algebra work of the second year is especially adapted to the age, maturity and ability of the pupil of the grade. The work of the third year resembles closely the work usually given in the second and third semesters of the four-year high schools. It is assumed that a pupil starting in the eighth grade and continuing the subject through the ninth will have earned one and one-half units of credit—fifteen hours—or, in other words, that his year of work in the eighth grade will have enabled him to gain as much knowledge of the subject as a half year in the ninth grade.

The algebra work in the eighth grade trains pupils to become familiar with the fundamental operations of algebra and to solve problems by means of the equation. The work is largely concrete, based upon the arithmetical knowledge already acquired. The translation of arithmetic to algebra is kept constantly before the pupil, and he is led to see that algebra is nothing but arithmetic generalized. Many topics in our modern algebra may well be omitted, e. g., the highest common factor by long division method; the complicated cases in factoring; long and difficult cases in brackets and parentheses; equations of more than two unknowns; theory of exponents; difficult radicals, and theory of quadratics.

Topics upon which special stress is placed are as follows:

Addition problems, equations involving addition and subtraction. Illustrate change of signs by means of bank deposits and bank withdrawals, by means of directions up and down, by means of directions north and south,

and by means of the thermometer. Transpose from one member to another in equations, using numerals first and letters later.

Review multiplication and division in arithmetic, showing that they are simply the reverse of each other. Multiply positive by a positive, multiply negative by a negative. Explain sign of product. Repeat the same steps in division. Explain sign of quotient. Review the fundamental operations frequently. Write out in full the following: $(a+b)^2$, $(a-b)^2$, $(a+b)(a-b)$. Formulate a law for the above operations. Reverse the process and factor the above. Define the square of a number. Define the square root of a number.

Common Fractions.

Review the arithmetical laws of common fractions.

Review general principles of division.

Illustrate the reduction of fractions to lowest terms and to the lowest common denominator.

Show by literal quantities that algebra employs the same laws.

In the solution of fractional equations omit for the present the term, **clearing of fractions**.

Solve many story problems in simple equations.

Review the square root of numbers, also the square root of such expressions $a^2+2ab+b^2$, also $a^2-2ab+b^2$.

Expand by means of the binomial theorem simple quantities such as $(a+b)^3$ and $(x+y)^4$. Fill in the missing terms in the trinomials and factor the trinomials thus obtained $9x^2+?+36=(?)^2$, $4x^2+28xy+(?)^2=(?)^2$, $25x^2+30xy+(?)^2=(?)^2$.

Only the simple cases of radicals should be taught to first year pupils.

Case I. Reduction where the quantity under the radical sign is a perfect power of the degree denoted by a factor of the index. This will necessitate the study of simple exponents in conjunction with radicals, e. g.

$$\sqrt[3]{8} = \sqrt[3]{2^3} = 2^{3/3} = 2^{1/1} = \sqrt[1]{2}$$

Case II. Where the expression under the radical sign is an integer and has a factor which is a perfect power of the same degree of the radical, e. g.

$$\sqrt[3]{54} = \sqrt[3]{27 \cdot 2} \quad \sqrt[3]{3^3 \cdot 2} = 3^{3/3} \cdot 2^{1/3} = 3 \sqrt[3]{2}$$

Case III. Where the expression under the radical sign is a simple fraction, e. g.

$$\sqrt[3]{\frac{2}{3}} = \sqrt[3]{\frac{2^3}{3^3}} = \sqrt[3]{\frac{8}{27}} = \frac{2}{3} \sqrt[3]{\frac{8}{27}} \text{ or } \frac{2}{3}$$

Introduction of quantities under the radical.

Introduction of simple coefficients under the radical sign, e. g. $5\sqrt{2} = \sqrt{50}$

Show that the $\sqrt{a} + \sqrt{b}$ is not the same as the $\sqrt{a+b}$ by means of the law learned in arithmetic, that the square on the hypotenuse is equal to the sum of the squares on the other two sides.

Further work is not attempted in the eighth grade.

HISTORY

Five courses in history are offered in the junior high school. History 1-J, 2-J, and 3-J are required. History 4-J and 5-J are elective. For detailed statement of the last two courses, see History I and II in "Hand Book of the Detroit High Schools."

The pupil upon entering the junior high school is introduced at once to the subject of United States History. This is his first attempt to study in a comprehensive and systematic way the history of his country. The aim is to make the work in so far as possible vital and interesting. Therefore emphasis is placed upon living truths rather than dead issues. History is the story of men who have lived and achieved. As such it is full of interest to the average boy and girl.

Emphasis is placed upon the fact that growth is an important key-word in our national life. Nations grow as individuals grow. From simple beginnings our present national greatness has come to be what it is by a process of gradual development. Causal relations are emphasized throughout the course. The topical method of treatment is followed. While the outline upon which this work is based is arranged chronologically it is nevertheless recognized that in much of the history work the chronological element should be subordinated if not entirely ignored. The study of biography is urged in connection with the study of history. The story of the lives of great men creates in the minds of the pupils high ideals and noble impulses. In no other way can our boys and girls be led to acquire more effectively ideals of good citizenship.

The work in United States History is carefully outlined in a separate pamphlet. Each teacher should have a copy of this course of study. This is meant only as a suggestive outline. It may be modified to meet special needs and conditions.

HISTORY 1-J

I. European Backgrounds.

With the maps before the pupils the teacher should try to give them some adequate notion of the world events and conditions leading up to the time of Columbus. Bring out the very limited geographical knowledge of the time, the Mediterranean being the middle of the world with the great seas and deserts beyond still a terrifying mystery.

Show the relation of the Crusades to the development of luxury and commerce in Europe with the accompanying growth and importance of the Mediterranean cities. Show how the spread of Mohammedanism closed the trade routes to the east while the demands of luxury and wealth stimulated the search for a water route to India. Note the travels of Marco Polo and call attention to the inventions that aided navigation. (See detailed outline.)

II. From the Old World to the new—Columbus—Exploration and Discovery.

This period covers in a rough way the century extending from the voyage of Columbus to the defeat of the Spanish Armada which event turned the tide of historical action from Spain to England. The Spanish explorations and settlements were made in the southern part of North America. They soon pass from our interest, having but little influence upon the trend of events in the English colonies, while the French on the other hand explored and settled the region of the St. Lawrence, Great Lakes and Mississippi, and remained an active element in American history until the fall of Quebec. England made almost no effort during the first hundred years, sending out only Cabot and Drake. This first hundred years of American history is full of dramatic action and romantic interest and is best treated in that style. All the important explorers should be studied, noting the motives that carried them forward.

To impress upon the pupils the geographical relation of the European interests in America take the maps of an ordinary geography and discover that the South is teeming with Spanish names, that the St. Lawrence, Great Lakes and Mississippi regions are well supplied with French names, and that the Atlantic coast region is marked by English names. These are the enduring monuments to early times.

III. The Indians.

See detailed outline for treatment of this subject.

IV. Colonization and the Colonists.

This period extends roughly over the seventeenth century, or the second hundred years of American history. Study briefly the Spanish and French settlements, noting the nature of their organization and the motives behind the movements which resulted in a more or less insecure footing upon the soil. Study in considerable detail the settlements of Virginia, Massachusetts, New York, Pennsylvania, Maryland and Georgia. Note that in general the impelling motive behind these movements was the desire for political, religious and social betterment. With settlers of high political and religious ideals these colonies took firm root and grew rapidly in strength.

V. Colonial Development—The Struggle for a Continent.

The eighteenth century or third hundred years of American history is marked by the great growth of the colonies and the intercolonial wars. By the middle of this century the English colonies were beginning to reach over into the territory claimed by the French and the inevitable struggle was at hand. Study in some detail the French and Indian war, noting the great political results, the effect upon the colonists themselves and its bearing upon the period that followed.

VI. The Revolutionary Period.

Study the grievances of the colonists and the short-sighted policies of the English government. Note the specific incidents that led up to the Declaration of Independence. Follow the course of Washington through the war and show that his great service consisted not in winning victories but in skillfully saving his pitiful army from utter destruction, thus keeping alive the cause of liberty until the tide of war turned. So long as an army was in the field the cause was not lost. Study in detail Burgoyne's campaign—plan, execution and results. Show how Washington assisted in this campaign. Study the struggle west of the Alleghanies, showing how the Northwest Territory was saved to the United States. George Rogers Clark. Note the important services of Paul Jones, give in some detail the events connected with Yorktown, and learn the boundaries of the United States as fixed by the treaty of 1783. Encourage individual reports and class discussions on the lives and deeds of great men connected with our history up to this point.

HISTORY 2-J

VII. The Critical Period—1783 to 1789.

The Confederation—a union of the original states under the Articles of Confederation. Show the weaknesses of this government and the difficulties arising under it. Study the Ordinance of 1787. The Federal Union—Show how an attempt to remedy the defects of the Articles of Confederation resulted in the making of the Constitution and the forming of the federal union. Note the three great compromises in the Constitutional Convention. Study the Constitution so as to show its superiority over the Articles of Confederation by providing for the three natural departments of government. Study these departments but not in minute detail.

VIII. The Constitutional Period—The Second Struggle for Independence—1789 to 1817.

This period was filled with anxiety for the people and government of the new nation. The difficulties attendant upon the founding of a new government designed to be so complete in every detail were very great. In addition to this, the chaotic condition of European affairs, due to the Napoleonic wars, caused our foreign relations to be strained in the extreme. Indeed, matters grew so bad as to result in the War of 1812, which happily put an end to America's troublesome entanglements with European nations. Note also these important events, victories of peace: invention of the cotton gin; purchase of Louisiana; invention of the steam engine; westward movement, etc.

IX. A Period of Social, Political and Economic Reorganization and Development—1817 to 1860.

This period is one of the greatest in American history in which the victories of peace play an important part. To this period belong the "Era of Good Feeling," "Monroe Doctrine," great internal improvements, the Erie Canal, development of railroads, manhood suffrage, the public school system, discovery of anaesthetics, invention of the magnetic telegraph, the telephone, harvesting machine, sewing machine, development of the coal and iron industry, newspapers, prison reform, vulcanized rubber—the handmaid of electricity, growth of American literature, increasing immigration and the development of the West. Two great problems engrossed the attention of the nation during this period, the slavery question and the doctrine of state sovereignty, culminating in the Civil War. See detailed course. Emphasize biography.

HISTORY 3-J

X. Period of the Civil War—1861 to 1865.

Teach the Civil War as outlined in the detailed course of study. The causes leading up to this great war should be reviewed. The three main plans of campaign should be kept in mind. We are now far enough re-

moved in time from the war to teach it in a non-partisan way. Only a few of the most important campaigns and decisive battles should be treated in detail. Dwell upon the details in such a way as to show the horror of war, and try to make the pupil comprehend the magnitude of such a calamity from an economic and moral point of view. The teacher should bear in mind that while heroic sacrifices for the nation and mankind deserve our unbounded admiration, yet war itself should not be glorified. Teach war as something to be avoided if possible.

XI. The Reconstruction Period.

This period is marked principally by the readjustments necessary after so great an upheaval in the nation. The reconstruction consisted in the political changes and acts necessary to give the nation a new birth of freedom and to reestablish the bonds of union. Study the amendments. Emphasize the purchase of Alaska and the laying of the Atlantic cable.

XII. The New Union.

This period is marked by the great development and progress of the country as shown in several great exhibitions. Political changes of great importance are to be noted. Call attention to westward expansion, the New South, civil service reforms, arbitration, useful inventions, industrial development, educational advancement, etc. Urge reading of lives of our great men. Follow the detailed course of study.

HISTORY 4-J

This course deals with the history of the ancient nations of the Tigris-Euphrates valleys and with Egypt and ancient Greece to the time of the Roman conquest of Greece.

HISTORY 5-J

Roman History. A study of Rome from the beginning to her overthrow by the hordes from the North.

(See Hand Book for Detroit High Schools).

GENERAL OR APPLIED GEOGRAPHY.

Following the completion of the study of United States History a course in general or applied geography is given. This course is taken up a year and a half after the pupil has completed his work in formal geography. Therefore the work begins with a review of the "minimum essentials in geography," as required at the end of the sixth grade.

The definite knowledge thus renewed enables the pupil to apply his "tools," to enter upon the study of topics, types and problems in geography that reach far and extend into various fields. The work taken up in this way touches life activities at many points. Political, commercial, industrial and physical geography, as well as civics and social science, are combined in varying degrees in this one course. The purpose of the topic and problem method of presentation is to aid the pupil in forming opinions through discussions with classmates and teacher. Geographic influences are emphasized whenever necessary to insure depth of thought by explaining the causes of life conditions. In the preceding years geography has been treated as static; in this course it is made dynamic. It is more than a study of things as they are; it is a study of things as they are becoming. It impresses upon the pupil the fact that we are in the midst of a process of adjustment to our geographic environment.

The problems presented to the class for solution are of great variety as to subject matter, and they are also variously stated. Thorough solution requires extensive investigation. This investigation reaches into widely separated fields. All phases of geography are touched in this manner of treatment. For example, a problem may deal mainly with transportation. Its full solution, however, calls for facts in political and physical geography as well as commercial.

The course is made elastic so that emphasis may be placed upon some particular phase of geography when this seems advisable. Those students pursuing an academic course often find topics dealing with physiographic facts most interesting. Commercial students find that their interests centre about problems of trade. In schools where vocational and technical subjects are greatly emphasized the appeal is in still another direction.

In the academic junior high schools, therefore, considerable emphasis is placed on physiography. Those schools having large commercial departments emphasize commercial geography. The technical or prevocational schools place their emphasis on commercial and industrial geography. Each type of school, however, is interested in the general course, but especially interested in that part of the course which bears directly on particular interests, and upon the civic and social aspects of the subject.

PHYSIOGRAPHY 1-J AND 2-J

For a statement concerning this course see the topic, Physical Geography, in "Hand Book of the Detroit High Schools."

DRAWING—FREEHAND AND MECHANICAL

Work in drawing is required two periods a week during the first two years, except in the commercial course. The amount of time assigned to the two types of drawing depends upon the classes. The attention given to each—freehand and mechanical—varies as to amount with the needs of the different classes in the same school, and also with the varying needs of classes in different buildings. The aim constantly kept in mind is the cultivation of taste for the beautiful, an appreciation of values, and ability to use the eye and hand. More-

over, the desire to relate the work to that of other classes and to that of the shops is ever kept uppermost in mind.

Freehand drawing finds application in the work of the sewing and millinery classes and is closely correlated with that work. Likewise mechanical drawing finds practical application in the shops.

The work in drawing is optional in the third year of the junior high school.

For detailed plans of the work, see *Course of Study in Drawing in the Detroit Schools*.

A further statement concerning mechanical drawing is to be found on pages 93 to 96 inclusive of this hand book.

PHYSICAL EDUCATION

The work of this department embraces instruction in physiology and hygiene, hygienic exercises, exercises in corrective gymnastics, apparatus work in the gymnasium, games, dancing, and various athletic sports. All pupils are required to take work in this department,—at least two periods a week throughout the course.

It is desirable to educate the body as well as the mind. The work done in this department should result in creating in the minds of the pupils a feeling of deep respect for the human body. It should lead to a desire on the part of every one to possess and to safeguard physical vigor, well-being, and health. It should stimulate a desire on the part of pupils to form right habits of living and to engage in wholesome and pleasurable recreation.

The activities of the department are managed by two physical directors, a man for the boys and a woman for the girls. Use of the showers is arranged for at certain times. The school gymnasium is used for all the indoor

work. Those schools not having equipment arrange to do the work in the gymnasium of some neighboring school.

Outside games and athletic sports are encouraged. The ideal ever kept in mind is to secure as large a representation as possible in games and athletic events. Inter-class meets and inter-school contests are arranged and managed by the physical directors to the end that as many different pupils as possible be induced to participate.

MUSIC

Music is required during the first two years. In the third year it is optional. The work is given twice a week.

The aim is to make the course in music in the junior high school popular and enjoyable. To this end an effort is made to interest the pupils in four-part music. The organization of mixed choruses is encouraged. Likewise effort is made to interest the boys in the forming of male choruses. The girls have their choral societies. This work is under the direction of the best equipped and most enthusiastic teachers that can be obtained. No effort is spared to make the work in music a feature. The formation of glee clubs and orchestras is encouraged. It is realized that good musical features mean much to a school in the way of school spirit and loyalty. This is an added reason why every legitimate effort is made to place the music work of these schools on as high a plane as possible.

COMMERCIAL SUBJECTS

Subjects listed in the commercial department are usually thought of as practical, bread-and-butter studies. The work offered in this department is made as definite, practical, and thorough as possible. It is hoped that

this course may prove to have a distinctly disciplinary and cultural value as well as the element of usefulness. There is no apparent reason why this should not prove to be the case, as any work willingly, earnestly, and successfully pursued is sure to react beneficially upon the worker.

The course is so arranged that students may continue their work in a regular academic high school or in the Detroit High School of Commerce, and receive credit for all work completed. Students are urged as far as possible to remain in school after graduating from the junior high school.

BOOKKEEPING

This subject is first taken up in the second year of the junior high school. It continues through two years, being given once a day in the eighth grade and two periods a day throughout the ninth grade. The work of the first semester consists in familiarizing the pupil with the use of ordinary commercial papers, such as bills, receipts, statements, promissory notes, checks, etc. Pupils also learn how to journalize, post, and take a trial balance. Special emphasis is placed upon accuracy and neatness from the beginning.

In the second semester a complete set of books is introduced and the pupil is taught the use of the journal, sales book, purchase book, cash book, and ledger. Trial balances are taken and the different books are closed at definite periods. The first year is confined practically to class room work and is under the strict supervision of the teacher.

During the second year of the course the student acts as bookkeeper for different kinds of business houses and special columns are introduced in the various books. The transactions covered are made real. Classes exchange commercial papers and keep strict account. The

effort is to do things as nearly as possible as they are done in the business world. The course endeavors to prepare the student for the situations he is likely to meet in the average office or business house. A student completing this work has a training that will be of value to him in the practical things of life, no matter what his occupation may be.

TYPEWRITING

The touch method of operating machines is taught throughout the course. Careful attention is paid to position, correct fingering, etc. The course in typewriting begins the first semester of the second year and runs two years, five times a week. During the first semester the pupil should become thoroughly familiar with the keyboard, and should be able to write short sentences. Emphasis is placed on correct habit formation from the beginning. The pupil is taught the principal parts of the machine.

The second semester's work consists in practicing sentences and letters. By the end of the second term the pupil should be able to write fifteen to twenty words per minute.

Through the second year of the work the pupil continues his practice from copy work with a view to increasing his speed, keeping in mind the fact that accuracy is always the most important thing.

All typewriting students are instructed in manifolding, tabulating, billing, legal forms, etc. The student should be able to write from copy material at the end of the ninth grade thirty to thirty-five words per minute. Those who are studying shorthand in the ninth grade devote a part of their typewriting period to transcribing shorthand as directed by their shorthand teacher.

SHORTHAND

Either the Graham or the Gregg system of shorthand is used, the matter of selection resting with the teachers in the various schools. The fundamental principles of the system are mastered. This includes perfect enunciation of sounds and accurate representation of all consonants and blended consonants, distinct vowels and vowel combination sounds. A student should acquire the ability to sound phonetically and write accurately from dictation all words, wordsigns, phrases, and sentences given in the text illustrating each principle, and he should be able to transcribe his notes at least one day after dictation. There are definite assignments made for work out of class, such as a thorough study and repeated copying of shorthand plates in the text. These plates use easy subject matter and simple business letters. This practice work from perfect shorthand plates is most valuable. Strict adherence to enunciating sounds and accuracy in visualizing and writing outlines are the chief aims in this first semester's work in shorthand. The course runs one period a day, five days a week.

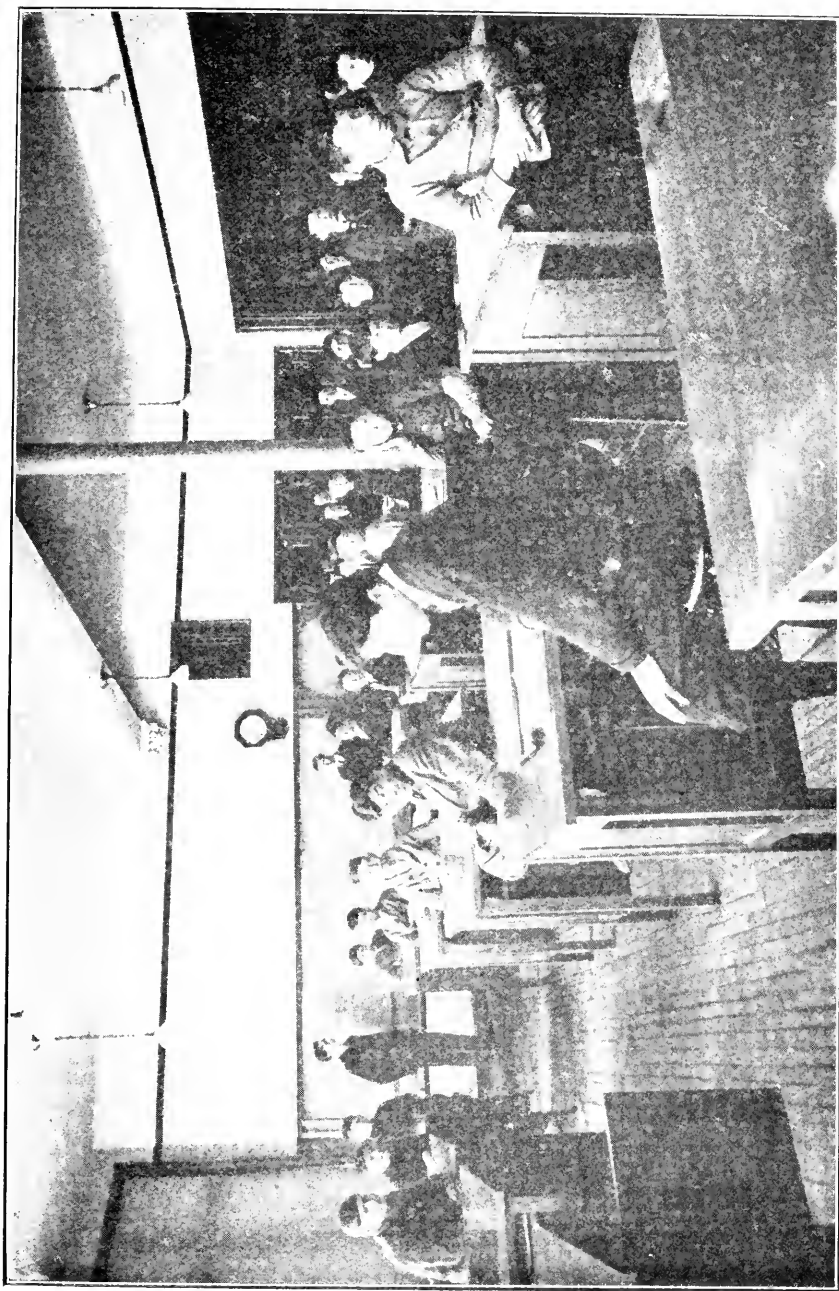
In the second semester's work part of every recitation is given to a systematic review of principles, taking words and sentences more difficult than those given in the text. Many shorthand monthly magazines are published which may be drawn upon. They furnish the best material for such review work. The text book is completed in two semesters. Study shorthand plates in the text, and give accuracy dictation tests. Students at the end of a year of work in this course should be able to write fifty words per minute from practiced matter.

COMMERCIAL ARITHMETIC PENMANSHIP AND SPELLING

This combined course is given throughout the second year or eighth grade. The work in commercial arithmetic is given three days of the week, and the work in penmanship and spelling is given the other two days.

In arithmetic the aim is to review parts of the work presented in the seventh grade and to develop a maximum degree of skill, speed, and accuracy in the four fundamental operations. The results should equal at least the standardized tests for the eighth grade. The further aim is to enable the pupil to handle skillfully the arithmetical problems arising in connection with the ordinary forms of commercial paper, banking, insurance, and municipal and corporation finance.

In penmanship, to which about thirty minutes of each of two class periods per week are devoted, an easy, rapid, legible style of writing is developed. The remaining part of each penmanship period is given to spelling. A study of the ordinary words used in various lines of business is made. Lists of commonly misspelled words are taken up. In the writing work the spelling lesson is looked upon as applied penmanship.



MANUAL TRAINING ROOM

MANUAL TRAINING

SHOP WORK

APPLIED DESIGN

MECHANICAL DRAWING

In the scheme of public education ample provision has been made for that small class of society, which after graduation from college, expects to enter some professional career. To this end all elementary education has largely been directed until within the last few years. Nothing short of the ultimate had been established as a complete unit, consequently a large majority of boys and girls, who through economic necessity are compelled to drop out of school before attaining their final aim, do so with the feeling that they are only sixty percent or seventy percent efficient instead of one hundred percent. This factor has a more or less direct bearing upon the degree of success attainable in whatever vocation they may finally drift. Many come to feel that their education has little to do with their success after all, as, with their limited view, they can see little connection between it and the daily routine of their lives. Naturally enough young people of such limited experience and incomplete academic attainment must find use for their services somewhere in the industries. They must go to their task of earning a livelihood with knowledge and training fragmentary at the best. Others, of course, recognize the incompleteness of their preparation to meet the conditions of life in which they find themselves, but are willing to pay the price in time and effort by attendance at continuation and part time schools or at private institutions.

It is with the idea of meeting the needs of this large class of young people and encouraging a somewhat longer continuance of their school days by bridging the gap between the grades and high school, that the Superintendent and Board of Education of Detroit established the industrial courses in the junior high schools.

The actual projects mentioned in these courses are not given in all the junior high schools. The exercises form the basis of the courses and the application is left to the teachers in charge.

For the English, German, Latin, and Commercial courses these outlines are modified in several respects and the most essential exercises selected. Part of the work in applied design and mechanical drawing as outlined for the industrial course is omitted.

Applied Design and Shop Work 1-J and 2-J

The work of the B-seventh grade is given in four periods of five weeks each. Two periods or half the time is given to constructive design and half to elementary bench work or joinery. This design work is of the most practical nature and includes study of spacing and proportion, free hand drawing, free hand sketching, modeling, plaster and cement casting. Considerable time is usually wasted in shop work because the student does not have a very definite idea of what he is expected to accomplish, consequently the shop equipment has to lie idle while this idea is being gained. By the use of this design period in connection with our shop work, we are able greatly to increase the boy's productive capacity and nearly or quite double the usefulness of our shop capacity, thus having it serve nearly double the number of pupils. As good design is the basis of all mechanical work, both design and the shop work gain in value when thus closely associated.

Design

The course in design for the boys of the B and A seventh grades presents the application to drawing and shop problems of some of the fundamental principles of design. We endeavor to develop in each pupil the following:

- An appreciation of good lines.
- A sense of good proportion.
- A recognition of bi-symmetry.
- A feeling for rhythm, balance and harmony.

This is done through criticism of the individual pupil's work; by comparison with the results attained by other pupils; by analyzing the good points in some excellent piece of work; and, often by a careful re-draughting of his own work after such criticism.

Each principle as it is introduced is immediately applied to some problem in hand. Upon the pupil's grasp of these fundamental design principles and upon the training in freehand drawing of the three fundamental art curves, depends to a very great extent his success in the subsequent work in design in the turning and cabinet making shops.

Clay modeling is used freely whenever it seems best adapted to the development of skill in drawing and to aiding the pupil in comprehending form.

Bench Work

The bench work in wood is planned to give the boys a thorough knowledge of tools and proper and fundamental tool processes; to develop considerable skill in bench work; to give the ability to understand and read working drawings; and to stimulate growth in industry and self dependence. Most tool processes are taught by means of abstract exercises which are made regular class work and are followed by the making of several small projects in which is applied the process which has been learned. We believe in the making of abstract exercises when there is a good reason for making them, and, many things can be taught in no better way.

MANUAL TRAINING 1-J

Process or Tool Exercise.	Tools Used.	Project.	Design and Drawing.
1. Measuring, marking, and sawing. Exercise, (Laying out work).	Rule, Pencil, Try Square, Rip and Crosscut Saws, Bench Hook.	Four pieces of wood laid out and sawed to dimension and used in making the exercises which follow.	Made only on the wood in the process of laying out. Meanwhile the class is making the drawing of project No. 2, The Vise Jaw.
2. Squaring up stock. Measuring, planing, and testing.	Tools same as above.	Wood Vise Jaws for use on the school benches. Wood, $\frac{1}{2}$ inch Birch.	Two views of an object, to full scale, giving all dimensions. (Use of Board, T square and triangles taught. (Detailed drawing.)
3. Gauging, knife lining or scoring and sawing to a Knife or Score Line.	Marking Gauge and Knife.	Abstract model, which is afterward used in teaching the use of the Block Plane.	Two views of object full size. Laying off a series of points. Freehand lettering used on all drawings.
4. Chiseling, (paring) and spoke shaving.	Former of Paring, Chisel, 1 inch, and Spoke Shave.	Coat Hanger of Red Gum. (No sand paper.)	Drawing made from model and from the teacher's sketch on board. Break and section, long curve drawn through a series of points.
5. End chiseling, block planing, and boring.	Block Plane and Brace and Bit.	Cutting board or Bread board. (Bass Wood.) (No sand paper to be used.)	From Rough Sketch of model made by the pupil. Dimensioning arcs and circles. Rounding corners.
6. General review of all exercises or processes learned.	All tools previously used are employed in this.	Tool or Chisel Rack for tool compartment of benches.	Laying off holes, measuring from center to center. Taking a series of measurements from scale.
7. Joining or fastening two or more pieces together. (Nailing.)		Two or three piece toys. Sled, chair, bench, table, settle, bed, rocking chair.	Design of ends important. Making pattern or template to be used in the shop. First use of the hidden outline.

MANUAL TRAINING 2-J

Process or Tool Exercise.	Tools Used.	Project.	Design and Drawing.
8. Block Planing to a Knife Line. An abstract model made from block used before in Ex. 3.	Block Plane.	Abstract Model.	No drawing.
9. Sighting for a straight edge. Countersinking, gluing, screwing.	All tools used before except Spoke Shave and in addition, the Countersink.	Bench Hook, T-square and 45° and 60° Triangles or both.	Bench Hook half size, T-square and Triangles full size, using the break in the T-square.
10. Duplication and fitting of parts, nailing.	Use of Coping Saw in some cases.	Wren House, Sash Box or other box construction.	Assembly and details. A detail of each piece used in this construction.
11. Designing of piece to develop ideas of good proportion and good construction. Finishing.	Sandpaper, Wood Stains, Brushes.	A. A square Candle Stick. B. Small Electric Lamp. (Oak or birch.)	Two plates, full scale. Assembly and details. Design and construction of Card Board Shade.
12. Construction of dado joint. Three methods of holding or fastening wood together.	Dowel Plate and Dowel Pins. Hidden Screws, Round Head Screws.	Abstract joint or Sandpaper Block, made from block used in Ex. 6.	This drawing all review of things previously learned.
13. Butt or dado joint construction. Scraping, and finishing. Staining and waxing.	Cabinet Scraper, Sandpaper and Block.	Letter Rack, or Book Rack, Shelf Bracket or Tie Rack, Whisk Broom Holder or Comb Case.	Use of templet made in the design room.

MANUAL TRAINING 3-J

Wood Turning

Wood turning is begun in the B-eighth grade and constitutes approximately half of the shop work of this grade, the balance of the time being given to bench work.

The use of the turning lathe gives the pupil his first acquaintance with power machinery. He is taught the importance of proper adjustment, oiling and caring for his machine, as well as strict attention to duty. The use of the gouge, skew, calipers, and parting tool, and use of the various cuts, such as the roughing cut, paring, slicing, etc., are taught through the use of simple exercises which are afterward turned to account in making various articles of value.

Bench Work

This course aims to give the fundamental processes of good construction as applied to furniture or cabinet making. To accomplish this aim it is required that each boy make one or more abstract joints which he will then apply in the construction of small pieces of furniture. Special emphasis is placed on the design of this furniture, with reference to the constructive rather than the decorative element. An effort is made to acquaint the boy with a variety of materials used, proper selection of stock, and several of the more common methods of wood finishing.

Particular attention is given to the proper use and care of tools, the object being to combine good tool work with good design and proper construction.

MANUAL TRAINING 3-J

Cabinet Making

Process or Tool Exercise.	Tools.	Project.	Drawing.
1. Laying out and sawing box construction.	Review of all tools used in seventh grade.	Abstract "Babbe" Joint.	Isometric drawing of the parts of this joint, showing them sawed out and placed in proper relation to each other.
2. (a) Application of above joint in the making of some useful article in box construction. (b) Setting in hinges.	Tools same as above. Cabinet Scraper.	Handkerchief Box. Glove or Jewel Box. Collar Box.	Working drawing showing two related views.
3. Laying out a half lap joint in one piece which after being cut apart should fit.	Same as above.	Half Lap Joint which may afterward be used in constructing Ex. 4.	Isometric drawing.
4. Design and construction of small piece of furniture, such as taboret in which the above joint may be used.	Expansive Bit.	Taboret with hexagonal square top, using half lap and dado joints.	Working drawing, with detail of joints in isometric, also detail of each piece.
5. The best workers in the class may design and construct any project involving exercises previously learned.		Sewing Cabinet, with lid and drawer, construction based on Ex. 1.	Drawings same as above.
6. Finishing with stain and oil or thin shellac is taught on all models in this half year.			

MANUAL TRAINING 3-J

Wood Turning

Process or Tool Exercise.	New Tool Used.	Project.	Mechanical Drawing.
1. Oiling Lathes and Shaft Boxing, mounting wood in Lathe. Use of Gouge—roughing.	1-inch Gouge, Outside Calipers, Steel Scale.	Roughing down eight cylinders: 1 6-inch by 1 and 1 6-inch, 1 6-inch by 1 and 3 4-inch, 3 11-inch by 1 and 1 1/2-inch, 3 7-inch by 1 and 6 16-inch.	No drawing of this first model or exercise is made, the pupil working from data furnished by the instructor.
2. Paring, slicing, cutting square shoulder.	1-inch Skew Chisel, Parting Tool.	Stepped Cylinder.	Regular pencil drawing, one view only.
3. Turning cone or tapering form.	Same as above.	Rest-holder Post, which is to be made use of by the class in pat- tern making.	Drawing same as above in re- spect to having but a single view.
4. Shaping to templet.	Same as above.	3 Turning Chisel Handles, 3 Socket Chisel Handles.	Use of Templet cut by pupil. A drawing is first made on bristol board and cut out with a sharp knife.
5. Exercise similar to above, design to be selected by the pupil.	3 1/2-inch Gouge and Skew.	Gavel or small mallet, design of which is worked out by pupil or furnished by the teachers.	Drawing produced same as above.
6. Face Plate turning, first use of scraping.	1-inch Scraping Tool.	Fill File Base, Oil Can Holder, or Furniture Coaster.	Regular class drawing, but one which does not permit of great variety.

MANUAL TRAINING 4-J**Wood Turning**

In the A-eighth grade approximately half of the time or ten weeks is given to advanced wood turning. Its relation to cabinet making is emphasized and such exercises are selected as can be made use of later in the cabinet making shop. As a first exercise several drawer pulls or knobs are made in sets of six or eight. This gives excellent review of the processes already learned and in addition gives the best of practice in duplicating measurements on a pattern. These knobs or pulls are used in the cabinet shop by the maker or are kept for future use. This first exercise is turned from large blue-prints furnished by the teacher. In the meantime, the pupil is preparing a detailed drawing of his second project, a circular top stool. This stool is of such size as to be used in the grade manual training shops or domestic science rooms. These stools remain the property of the Board of Education, the student being required to contribute this much of his time and skill for the benefit of the department. Each stool consists of thirteen pieces and can be made a good lesson in manufacturing methods. It is particularly good as an exercise, as it brings into use practically all the tool processes learned. In order that each batch of stools may be uniform in design, each student is given the opportunity of submitting a design for the ornamental part of the leg, and from those the best is selected and the whole class required to draw it. The size and general proportions of the stool are furnished by the instructor.

The third problem consists of turnings for the base and post for an electric library lamp. This project is of the pupil's own design and gives opportunity for a little

more decorative handling. The shades are made of wire and silk or cardboard and silk. When made of cardboard the decorative treatment is first cut out with a sharp knife, after which it is put together and finished with an ebonite finish. The lamp is wired for electricity, using a silk cord inside a brass lining in the post.

When needed by the school, hat standards for use of the millinery department or skirt markers, etc., are made in addition to the lamp or in place of it.

The fourth exercise consists of turnings for small footstool of simple pattern, which is to be made with a woven cane or corded top.

Bench Work

The first work on the benches consists of assembling the two stools and lamp.

Next is given a class exercise in the making of a model mortise and tenon joint. This is followed by the building of some piece of furniture in which this constructive feature is used.

Suggested projects:—ottoman, Morris chair, piano bench, etc., clock case, or some cabinet work for the Board of Education.

MANUAL TRAINING 4-J

Wood Turning

Process or Tool Exercise.	New Tools Used.	Project.	Mechanical Drawing.
1. When coming the first semester, a general review of all tools used before, and exercises, are repeated on scrap wood.	Review of 1-inch Gouge and Skew, Dividers, Calipers, and Parting Tool.	Simple Spindle, or a set of Drawer Knobs, etc.	No drawing is made of this model, the pupil working from a blue print furnished by the teacher.
2. Duplicating parts, and work to accurate dimensions.	1-inch Scraping Chisel.	4 Stool Legs, 8 Spindles, 1 Stool Top.	Detail drawing of parts, using template for irregular curves.
3. Original design and turning of (1) A Column. (2) Plinth.	Same as above. Chuck for boring hole in post.	Electric Table or Reading Lamp.	Design, and complete one view pencil drawing.
4. Design and turnings for a Clock Case.	Round Point and Diamond Point Scrapers.	Clock Case.	Design and complete working drawing of two or more views with such details as are necessary.
5. General review of all exercises or processes, applied to construction of some pieces of furniture or equipment for the use of the school.		Extra Projects, Pedestal, Turned Taboret, Hat Standards, Skirt Markers, Indian Clubs, Base Ball Bat.	Finished drawing of object chosen.

MANUAL TRAINING 4-J—(Continued) **Bench Work**

Process or Tool Exercise.	Tools Introduced.	Project.	Drawing or Design.
1. Gluing and clamping or assembling.	Steel Bar Clamps.	Assembling the stool which was turned during the turning lesson.	While this assembling is being done the pupil is working on first plate of geometric construction.
2. Assembling the Electric Lamp made in the turning class. Wiring.	Same as above.	Electric Reading Lamp with Turned Post and Base.	Isometric drawing is taught, using the mortise and tenon joint. This drawing is made use of in the shop.
3. Mortise and tenon cutting. Laying out—chiseling.	Mortising Chisel.	Abstract Joint for practice work preparatory to its application on most projects which follow.	The design of the next project is being planned and a working drawing with detail is made.
4. Furniture making. Pupil has choice of object to be constructed.	Cabinet Scraper.	Piano Bench, Ottoman, Morris Chair, Taboret or small Writing Desk.	
5. Continuation of furniture making, some time being given to making school equipment or doing repair work for school.			

MANUAL TRAINING 5-J**Cabinet Making**

The bench work of the ninth grade is largely an application of principles of construction learned in the seventh and eighth grades. Manufacturing methods are used in so far as practicable. A few new processes are learned, such as dovetail joint construction, paneling, veneering, jig and templet making. Also the use of the combination and circular planes, finishing by means of scraping, sponging and resanding, filling, varnishing, and rubbing are taken up at this time.

The time is given mostly to making objects for the use of the school, which as far as possible are made class exercises. All work is done from fully dimensioned assembly and detailed working drawings. These drawings are made in the course of the regular work of the mechanical drawing class, each student being required to make a complete set of drawings with tracings of everything constructed in the shop. Here, as in the previous years, each new process as it comes up in the course of the work, is given as a class exercise.

MANUAL TRAINING 6-J**Pattern Making**

The second semester of the ninth grade is devoted to wood pattern making. Enough wood turning has been taken the preceding year to enable the student to handle the turning lathe and he at once turns this knowledge to account in pattern making. Twenty weeks of eight and one-third hours per week is given to this work and the following outline covered:

Elements of Pattern Making.

Selection and use of Materials.

Laying off Patterns.

Different methods of building up a pattern, which includes use of glue, brads, screws, common joints and segment work.

Molding and molding materials.

Allowances, Draft, Shrinkage, Finish.

Rappage, Warpage, etc.

Fillets, Green and Dry Sand Cores.

Six or seven simple patterns are made to illustrate the above principles. These exercises are not abstract, but are all well chosen models of parts of the turning lathe, or of new appliances for the shop. These patterns are all carefully finished by shellacing and each has a sand mold made of it.

Below is given a list of the exercises used this year:

1. A split Pattern; Sash Weight gives use of dowels and methods of holding wood together in lathe, also illustrates the use of this form of pattern to facilitate molding.
2. Built up patterns, a base for a jumping standard, illustrating constructional joints, draft, and use of the fillet and green sand core.
3. Shaping; use of the pocket knife in pattern making; a pair of cam tighteners for tail stock and rest holder on the lathe.
4. Carving or shaping; a six or twelve inch hand or tool rest for turning lathe; illustrates shrinkage, finish, draft, parting, and use of machining lug.
5. Sand cores, simple core boxes, core prints, machining boss; a rest holder.
6. Segment work; gluing, ring turning in face plate, finishing; a six inch hand wheel.
7. Making a sand mold of each pattern.

In addition to the above class work note books are kept and composition writing on suggested topics is required. This is done in connection with the work in English.

A regular feature of the work is a class visit to some pattern shop and foundry. This visit is arranged by the instructor and is personally conducted. A written review is required of things observed on this tour of inspection.

MANUAL TRAINING 6-J

Sheet Metal Work

An elementary course in sheet metal design and construction is offered in the A-Ninth grade. No branch of industrial work is more interesting to the pupil and few more important than this work in thin metal construction, and its increasing importance in the building trades and in other lines makes it desirable as a means of instruction in any kind of industrial school. Its educational value is due, to a great extent, to the ease with which it may be correlated with the various other branches, and to the simplicity of its mechanical operations. It affords a very ready means for the practical application of the first general principles of mensuration, geometry, and mechanical drawing.

The development of the pattern requires some knowledge of construction or the method of fastening the parts together, whether soldered, grooved or riveted seams, wired or hem edges.

The patterns may be developed by means of one of the three following methods:

1. By means of parallel lines.
2. By means of radial lines.
3. By triangulation.

To begin with, a plan and elevation drawing of the article must be made. Upon the accuracy of this drawing and the pupil's understanding of it depends largely

the success or failure of the final result. Also a preliminary drawing of the typeform to which the object belongs should be made.

Problem 1. Square cake pan. Size 6" by 9"; height of side when finished 1 inch. Hemmed edge. Folded corner.

Problem 2. Dust Pan with turned wood handle, or ash scoop for use in the shop or furnace room.

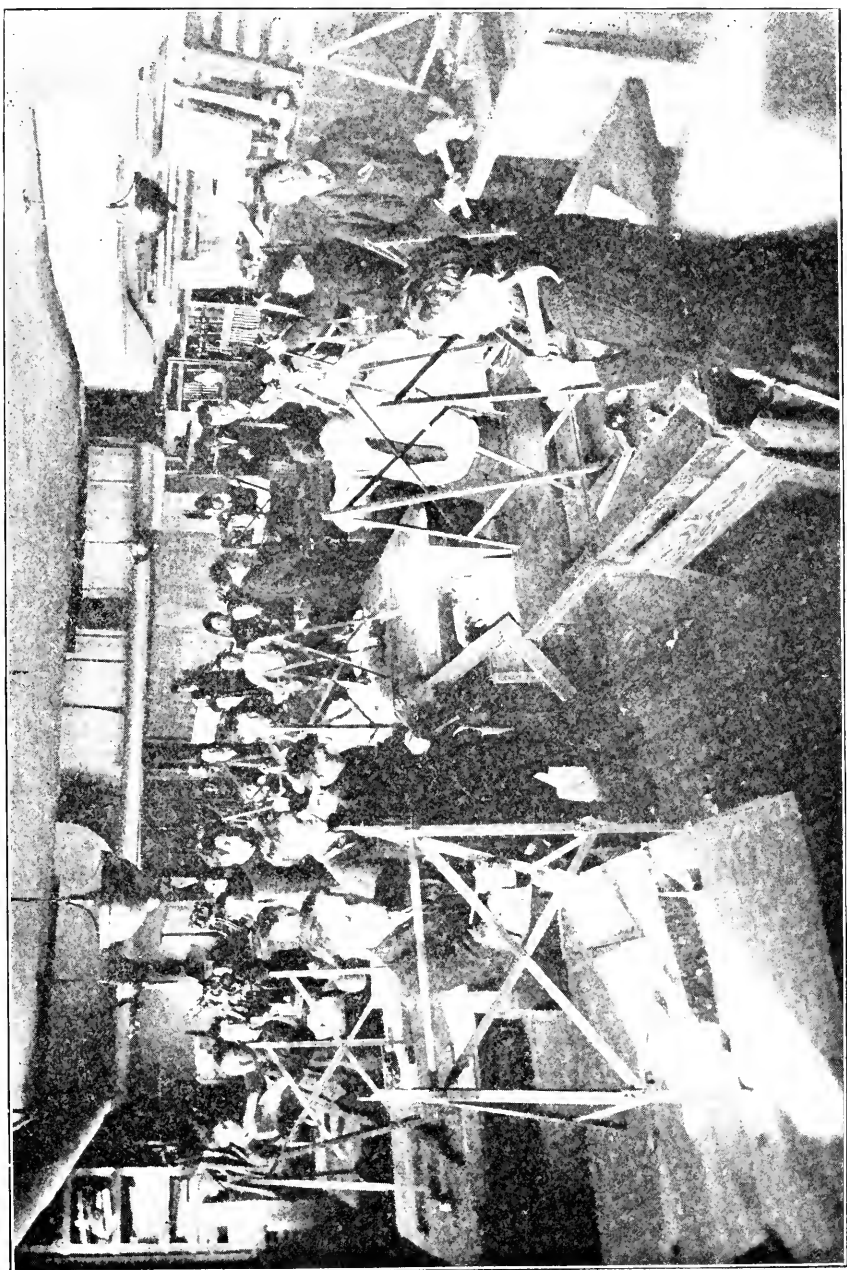
Problem 3. Sugar Scoop or Flour Scoop. Size $3\frac{1}{2}$ by 5 inches.

(Cylindrical development). End and handle turned in the turning class.

Problem 4. A one pint measure, (Determine size and proportion); or zinc cells for dry battery, (New lesson, soldering).

Problem 5. Tin funnel, 5 inch, (Radial line development).

Problem 6. Base and shade for electric lamp. To be made of copper or brass, suitably finished and fitted with fixtures and wired ready for use. This design to be developed by the pupil.



CABINET MAKING SHOP

MECHANICAL DRAWING

The Mechanical Drawing Courses are planned and worked out in conjunction with the courses in Bench Work and Design.

All drawings are of models to be produced in the shop. As a preliminary step to each drawing, a working sketch, free hand, is made.

The student **does not copy** his drawing. He sees the actual model and sketches what he sees. The sketches are corrected and O. K'd by the instructor after which the boy plans the arrangement of his views and proceeds with the finished working drawing.

Careful attention is given to free hand lettering in each course.

MECHANICAL DRAWING I-J

The following models are used in one of our junior high schools; other models may be substituted:

The first two drawings, the Vise Jaw and Knife Lining Exercise, are very simple, requiring only two views. Three kinds of lines are used here:—Visible, Extension and Connecting, and Dimension Lines.

The third drawing, the Coat Hanger, calls for Center and Section lines; cross section view and broken surface.

Next comes the Cutting Board, the first scale drawing bringing into practical use Geometric problems previously studied.

Students are given a choice for the last model. Match Box, Mail Box, Watch Holder, or Tie Rack, may be selected. This model is first worked out and sketched

in the Design Room and some simple terminal enrichment is developed. From these sketches the boy makes his full sized Mechanical Drawing.

With the work in Mechanical Drawing in the seventh grade four plates in simple geometric construction are given. One period (45 minutes) each week throughout the year is devoted to this work. The problems given are calculated to be of immediate use to students in arithmetic, drawing, design, or bench work. Many new words and expressions come up in this work and much time is spent in becoming thoroughly familiar with all such new words. Each plate consists of four problems.

For correlation between Mechanical Drawing and Manual Training and other details see tabulations of Manual Training Courses, 1-J, 2-J, 3-J, and 4-J.

MECHANICAL DRAWING 2-J

As in the previous term's work, the first two drawings are rather simple. Here we have again the Drawing to Scale applied in both the Bench Hook and T-Square, also drawing an arc tangent to lines forming a right angle and the showing of a break, in the T-Square drawing.

In the Bird House or other box construction which constitutes the third drawing in this course, we have detail and assembly drawings. Details are drawn first then the assembly.

Next comes the Book Rack which is first designed and sketched in the Design Room. A choice of one of three styles of Book Rack is made. **In exceptional cases** an oblique parallel line projection of the Book Rack is made which proves of additional interest to the boys.

The last model in the course is an Electric Lamp. As in the previous case this model is designed and sketched in the Design Room and various styles are developed, all, however, of approximately the same size. This again is a detail and assembly drawing.

MECHANICAL DRAWING 3-J AND 4-J

Design and Mechanical Drawing are divided into four periods of ten weeks each and are closely correlated with the shop work. A freehand working sketch and a finished, fully dimensioned working drawing in pencil are made of each shop project, and, in nearly every case, the design of the project is worked out by the pupil. The main aim is to give the pupil power correctly to interpret a drawing. No deviation on his part from the terms of the original sketch or drawing is permitted. Fourteen sketches and working drawings are made, including turning details of a single view, working drawings of two or more views, special emphasis being placed upon the correct relation of the different views, and isometric projections of construction details. In addition to the above, four plates of geometric constructions, consisting in all of sixteen problems, are given. Such problems only as are of immediate use in the shop or mechanical drawing room are used. These have been carefully selected and graded so as to come most naturally within the pupil's experience.

In the latter part of the A-Eighth grade, two of these geometric plates are used for the first practice in inking. The isometric drawings are also inked and usually a tracing made. For details see Manual Training 3-J and 4-J.

MECHANICAL DRAWING 5-J

Working Drawings continued. More emphasis placed on Freehand Lettering, Working Drawings of machine parts, Cabinet Projection.

MECHANICAL DRAWING 6-J

Projection; Sectional Views; Screw Thread Conventions; Sheet Metal Drafting; developments of the Cylinder. Three piece elbow pipe and branches. Cone, Stope Sheet Reduction Elbow and Triangulation.

APPLIED ELEMENTARY PHYSICS

The course in elementary physics is a part of the manual training work. It is worked out in the shops. Classes are held five periods a week during the last three semesters of the industrial course. The course is designed to give some practical knowledge of matter and materials, particularly that which is necessary to the understanding of electrical appliances. The last half year is devoted to electric wiring. This outline is tentative and will be added to from time to time. Certain features may be omitted later as experience proves advisable.

APPLIED PHYSICS 1-J

(Fourth Semester)

The work outlined below is purely a laboratory or shop course.

I. Properties of Matter.

1. Examples:—inertia, malleability, ductility, etc.

II. Force.

1. Gravitation.
2. Centrifugal.
3. Centripetal, etc.

III. Power.

1. Horsepower.
2. Watt.

IV. Energy.

1. Potential.
2. Kinetic.
3. Transformation of energy.

V. Machines.

1. Kinds :—lever, incline plane, wedge, wheel and axle, screw, pulleys.
2. Friction.

VI. Fluids—mechanics of—

1. Atmospheric pressure.
 - (a) The barometer.
 - (b) Pumps.
 - (c) The siphon.
 - (d) Hydraulic ram.
2. Specific gravity.

VII. Sound.

1. Source.
2. Transmission.

VIII. Light.

1. Photometry.
2. Reflection.
3. Photography.
 - (a) Study of cameras.
 - (b) Development of negatives
 - (c) Slide making.
 - (d) Blue prints.

IX. Heat.

1. The thermometer.
2. Expansion due to heat.
3. Engines :—Steam, Gas, Hot Air, Turbine.
4. Heating systems.
5. Ventilating systems.

APPLIED PHYSICS 2-J

- I. Electricity.
 - 1. Static.
 - 2. Current.
 - 3. Magnetism.
- II. Static Electricity.
 - 1. Electrification.
 - 2. Influence machine.
 - 3. Atmospheric electricity
- III. Magnetism.
 - 1. Magnetic fields.
 - 2. Polarity.
 - 3. The earth a magnet.
 - 4. The magnetic needle.
- IV. Current Electricity.
 - 1. Batteries.
 - 2. Battery making.
 - 3. Electric circuit.
 - 4. Direction of current.
 - 5. Heating effect.
 - 6. Electroplating.
 - 7. Storage cells.
 - 8. Electric magnet.
 - 9. Induction coil.
- V. Electrical Symbols.
- VI. Ohm's Law.
- VII. Electrical Measurements.
- VIII. Electrical Circuits.
 - 1. Series.
 - 2. Parallel.
 - 3. Combination.

IX. Current Distribution.

1. Line drop.
2. Line loss.

APPLIED PHYSICS 3-J

I. Wire and Wiring Systems.

II. Bells and Annunciators.

III. Lighting and Heating.

IV. House Wiring.

1. Methods and systems.
2. Location of outlets.
3. Types of insulators.
4. Types of switches.
5. Testing of systems.

V. Generators and Motors.

1. Magnetic fields of—
2. Study principles of—
3. Winding and setting up motors.
4. Detecting troubles.

VI. Transformers.

VII. Starting Boxes.

VIII. Making Electro Magnets.

IX. Study construction of electric bells.

1. Make one.
-

DOMESTIC SCIENCE

The aim of the course in domestic science is to teach manual dexterity, a knowledge of food principles and materials in relation to the proper nourishment of the body, and to arouse interest in the right fulfillment of home duties.

A brief outline of the work for the four courses is as follows:

Domestic Science 1-J

Cookery.

General Sanitation.

Serving.

Domestic Science 2-J

Cookery.

Laundry Work.

Domestic Science 3-J

Cookery.

Marketing.

Housewifery.

Advanced Laundry Work.

Domestic Science 4-J

Cookery.

Preparation of Meals in Connection with Study of Menus.

Digestion of Foods.

DOMESTIC SCIENCE 1-J

Cookery—

Carbohydrates—Introduction of subject, study of measurements, abbreviations, equivalents.

Use of utensils. Begin study of foods, especially carbohydrates. Vegetables: choice, care, kinds of preparations. Fruits: food value, choice, preparations. Cereals: composition, care, products, food value, cooking of.

Milk: composition, care, products, food value, cooking of.

Eggs: tests, composition, food value, preparation.

Sugar: kinds, forms, food value.

Each lesson is accompanied by practical cooking such as:—mashed potatoes, creamed carrots, apple sauce, stewed prunes, steamed rice, corn-starch mold, tomato soup, cocoa, custards, etc.

General Sanitation—

Lessons are given in care of kitchen sinks, refrigerators, etc.

Serving—

Table manners, setting of table, and proper way to serve a simple meal.

DOMESTIC SCIENCE 2-J

Cookery—

Proteids: Meats, soups, fish. Effects of temperature. Quality of different cuts. Kinds of meat, determination of freshness, judging meats; care of meats, preparation for cooking, etc. Method of cooking, such as broiling, roasting, searing, and methods of extracting juices.

Poultry and fish.

Practical lessons, as:—pan-broiled steak, breaded chops, stews, roasts, meat and fish sauces, baked fish, salmon loaf, etc.

Fats—

Deep fat frying. Digestibility of fried foods, etc. Practical work,— doughnuts, fritters, croquettes.

Laundry Work—

General process, making of starch, softening of water, bluing, general rules for ironing and folding.

DOMESTIC SCIENCE 3-J**Cookery—**

Flour Mixtures:—Study of wheat, kinds of flour, leavens, baking powders, shortening, pastry.

In connection a few simple chemical experiments are performed.

Practical Work:—Muffins, popovers, cakes, cookies, biscuits, frosting, baking powder, apple, mince, pumpkin, and lemon pies.

Marketing—

A study is made of food materials with regard to season, cost, selection, and care.

Trips are made to local markets.

Simple accounts are kept.

Housewifery—

Duties of housewife.

Study of each room as to location, ventilation, and care.

Care of rugs, furniture, linen, glass-ware, silver, etc.

Advance Laundry Work—

Study of equipment, utensils, soaps, and accessories. Washing of colored goods, woolens, silks, and laces. Bleaching use of mordants. Removal of stains. Dry cleaning.

DOMESTIC SCIENCE 4-J**Cookery—**

Preserving and canning.

Study of preservation, methods.

Directions for canning, pickling, and jelly making.

Practical work:—Canned peaches, tomatoes, etc.
Pear and peach pickles, crabapple, grape, and cranberry jelly, chilli sauce, etc.

General review and preparation of more difficult dishes.

Home Nursing—

General study of prevention of disease and care of the health, use of bandages, treatment of simple accidents as burns, cuts, etc. First aid in emergencies, treatment for fainting, hiccough, drowning, etc.

Invalid Cookery—

In connection with Home Nursing, simple diet and preparation of tray.

Preparation of Meals—

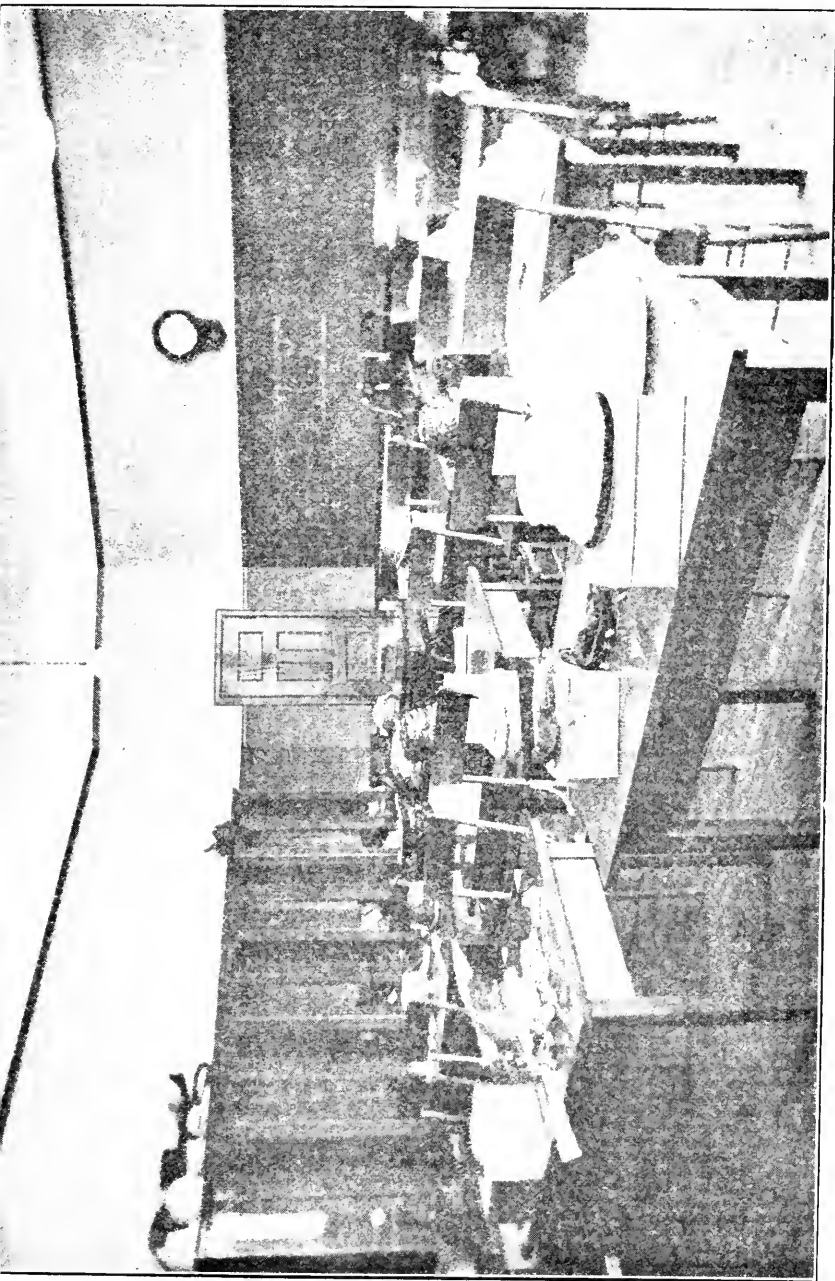
In connection with study of menus.

A study of food values, menus, and diet according to age and occupation is taken up.

Digestion of Foods—

Simple study of nutrition and digestion of foods.

Simple dietary calculations are made.



MILLINERY ROOM.

DOMESTIC ART

The aims of the work in Domestic Art are to make the girls more efficient homemakers, and to serve as a preparation for the trade classes in Dressmaking.

In addition to the actual sewing done, talks are given on the following subjects:

1. Textile fibers.
 - a. Growth.
 - b. Geography.
 - c. Processes of manufacture.
2. Judging kinds and qualities of materials.
 - a. Uses, widths, prices, etc.
 - b. Tests for strength, adulterations, fading, etc.
3. Appropriateness of materials to different garments.
4. Suitability of trimmings.
5. Factory legislation.
6. Unions and Consumer's League.
7. Inventions.
 - a. Cotton gin and its effect on spinning and weaving.
 - b. Power looms.
 - c. Sewing machine.
8. The industrial aspect of the change of fashions.
9. Appropriateness of dress.

DOMESTIC ART 1-J

Problems.	Processes.	Thought Content.	Correlated Subjects.	Remarks.
I. Pin Cushion.	Hand work. Basting. Overhanding. Machine stitch. Filling.	Use. Suitable materials. Filled with scraps of woolen materials. Cut in bits.	Arithmetic. Drawing.	Use of pin cushion in the home. Mother's work basket. To be kept in sewing box.
II. Needle Book.	Hand work. Basting. Overhanding. Blanket stitch.	Made to match pin cushion. Suitable material.	Drawing. Measuring.	Use in the home. To be kept in sewing box.
III. Sewing Bag.	Even basting. Machine stitch, hemming, overhanding, overcasting, running stitch. Putting in tape.	Care of sewing. Orderliness. Cleanliness. Neatness. Suitable materials. Gingham, calico, per- cale, cretonne, etc.	Arithmetic. Textiles. Initials. Design. Geography.	To be used when work is taken home nights. To be made by girls who have none. Made in Fourth Grade.

IV. Darning model stockings brought from home.	Plain weaving. Make a model first.	Care of stockings, washing. Darn first small hole. Economy of darning.	History of weaving. Manufacturing of stockings.	Model to be mounted in note books.
V. Patching and mending model and garment.	Matching. Pinning in place. Basting. Hemming.	Economy. Care of clothing, washing, ironing, mending.		Help in the home.
VI. Seam Model. Five Seams.	Common French Fell. Top Flannel.	Use. Suitable stitches. Model for future reference.		Review of seams and stitches.
VII. Button Hole Model.	One style.	Strand, overcast, fan bar.		Suitable for dresses and undergarments.
VIII. Plackets. Three kinds.	Basting. Machine stitch. Hemmed. Bound. Flat bound.	Application on garments to be made. Suitable placket for different materials.		Model for reference and practice.

DOMESTIC ART 1-J—(Continued)

Problems.	Processes.	Thought Content.	Correlated Subjects.	Remarks.
IX. Sewing Apron.	To be made by hand. Pocket for holding work and tools.	Use. Suitable material. Draft pattern. Fit pattern.	Arithmetic. Design. Measures.	Use in home.
X. Machine practice.	Treading. Threading. Filling bobbin.	Care and value of machine.	History of machine. Kinds.	
XI. Taking measures.	Measures necessary in making garments.		Arithmetic.	
XII. Corset Cover.	Fitting of paper pattern. Pin parts together. Fell seam. Basting. Fitting. Hemming. Overhanding on lace. Buttons. Button holes.	Suitable materials. Economy in cutting, in trimming. Compare ready-made with home-made.	Arithmetic. Geography. Design.	Cost. Economy. Made principally by hand to give more practice in hand sewing and to create a desire for fine needle work.

<p>XIII.</p> <p>Petticoat.</p> <p>Gathered or gored.</p>	<p>Pattern.</p> <p>Machine and hand sewing.</p> <p>Putting on ruffle.</p> <p>Bias facing.</p> <p>Button.</p> <p>Button hole.</p>	<p>Choice of suitable material and trimming.</p> <p>Accuracy.</p> <p>Measures.</p> <p>Economy of cutting.</p>	<p>Arithmetic.</p> <p>Amount of material cost.</p> <p>Textile study—cotton.</p>	<p>Use in the home.</p> <p>Making for others.</p> <p>Flannel or flannelette if made in winter.</p>
<p>XIV.</p> <p>Kimono.</p> <p>Night gown.</p>	<p>Machine and hand work.</p> <p>French seams.</p> <p>Hemming.</p> <p>Overhanding on lace.</p> <p>Feather stitching, or French Embroidery.</p>	<p>Choice of material.</p> <p>Drafting of pattern on material.</p> <p>Trimming.</p>	<p>Study of laces.</p> <p>Arithmetic cost.</p> <p>Design from Design Room.</p>	<p>Cost compared with ready made garment value.</p>
<p>XV.</p> <p>Kimono.</p> <p>Dress or Middy Blouse and Skirt.</p>	<p>Cutting a pattern.</p> <p>French seams.</p> <p>Facings.</p> <p>Belt.</p> <p>Use of commercial pattern.</p>	<p>Suitable material.</p> <p>Economy of cutting.</p> <p>Materials.</p> <p>Suitable style.</p> <p>Neatness.</p>	<p>Arithmetic cost.</p> <p>Drawing.</p> <p>Textiles.</p>	<p>Suitable for work or school dress.</p>
<p>XVI.</p> <p>Hand made Guest Towel.</p>	<p>Hemstitching.</p> <p>Darning.</p>	<p>Why linen toweling is better than cotton.</p> <p>Huckaback weave.</p>	<p>Design made in Design class.</p>	<p>Cost.</p> <p>Use in home.</p>

DOMESTIC ART 2-J

Problems.	Processes.	Thought Content.	Correlated Subjects.	Remarks.
I. Darning stockings.	Review of 1-J work.			
II. Patching garments.	Review of 1-J work.	Care of clothing. Flannel patch and darning.		
III. Button hole model.	Review of 1-J work.	Button holes should be greatly improved.		
IV. Seam model.	Review work.	Better and more thought put in work.		
V. Plackets, three kinds.	Review of 1-J model.	These plackets should be made from memory.		Pupils should be able now to use own judgment when to use them.
VI. Measurements.	Review of 1-J work.	To determine amount of material needed. Alter pattern.		Make girls more independent sewers.

<p>VII.</p> <p>Machine practice.</p>	<p>Use of tucker.</p>			Care and use of machine.
<p>VIII.</p> <p>Cooking uniform.</p> <p>1 Kimona apron.</p> <p>2 Dutch cap.</p> <p>3 Holder.</p> <p>4 Towel.</p>	<p>Measure for material.</p> <p>Choice of suitable material.</p> <p>Draft pattern on material, cut, pin, baste.</p> <p>French seams.</p> <p>Bias facing.</p> <p>Two pockets.</p> <p>Buttons.</p> <p>Button holes.</p>	<p>Application of tucks on garments.</p> <p>Allowance for shrinkage, and growth of girls.</p>	<p>Arithmetic cost?</p>	
<p>IX.</p> <p>Drawers.</p>	<p>Fell seams.</p> <p>Bands.</p> <p>Ruffles of material.</p> <p>Tucks—use of tucker.</p> <p>Receiving tuck.</p> <p>Buttons.</p> <p>Button holes.</p>	<p>Amount of material.</p> <p>Suitable materials.</p> <p>Trimming.</p> <p>Use of pattern.</p>	<p>Arithmetic cost?</p>	<p>Patching.</p>

DOMESTIC ART 2-J—(Continued)

Problems.	Processes.	Thought Content.	Correlated Subjects.	Remarks.
X. Gored petticoat.	Use of pattern. Fell seams. Flat bound placket. Ruffle of material. Band. Receiving tuck. Button. Button hole.	Suitable materials. Compare ready-made with home-made. Ruffle tucked with tucker. Gored petticoat leading up to dress skirt.	Arithmetic cost?	May use scallops, feather-stitching, or narrow lace edge for ruffle. Leading up to dress skirt.
XI. Night gown with set in sleeves.	Paper pattern—cut, pin, baste. French seams. Feather stitching, scallops, embroidery or lace.	Suitable material. Set in sleeves leading up to middy blouse.	Arithmetic cost? Amount of materials. Design from Design room.	Samples brought in of cloths and trimmings.
XII. Middy blouse.	Commercial pattern. Fell seams.	Suitable materials. Great care taken in basting and stitching.	Arithmetic cost?	

XIII. Middy skirt.	Commercial pattern.	Material to match blouse.		Blouse and skirt may be joined.
XIV. Towel.	Hem-size. Hemstitching.	Different kinds of towel- ing.	Cross-stitch pattern.	Why linen toweling is better than cotton.
Supplementary lunch cloth.	Damask or French hem.	Size of cloth. Width of hem.	Initial.	Care and use of good table linen.
Napkin.	Damask hem.	Size—use. Width of hem.	Initial to match that on lunch cloth.	Washing, ironing, folding, of napkins.
Gymnasium suit.	Blouse made like middy blouse.	Choice of material for blouse same as for middy blouse, skirt or bloomers — navy blue serge or wash material.	Arithmetic amount of material cost.	
If used in school can be substituted for middy suit, blouse skirt or bloomers.	Plaited skirt or bloomers. Stitching seams. Pressing.	Use of commercial pattern.		

DOMESTIC ART 3-J AND 4-J

Problems.	Processes.	Thought Content.	Correlated Subjects.	Remarks.
Machine practice. Princess slip.	Use of attachments. Commercial pattern Flat-felled seams. Flat bound placket. Finish at neck and arm- hole— $\frac{1}{8}$ " hem by hand with beading and lace over-handled. Application of ruffle. Receiving tuck.	Choice of suitable ma- terial and trimmings.	Design from design room to be applied.	Design to be very simple.
Nightgown with sleeves and yoke. Feather-stitched at neck and lower edge of yoke. Large towel hem- stitched. Darning and mending.	Commercial pattern Flat-felled seams— hem 2" and hemmed by hand. Cross-stitch. Putting in patch. Darning table linen, stockings and lace cur- tains.	Longcloth. Flannelette. Huck or damask towel- ing.	Design from design room.	Lazy daisy may be worked in with the feather stitch if de- sired.
Middy suit blouse and skirt.	Emblem embroidered on blouse, 4-gored skirt. Flat tailored seams over-casted.	Suitable cotton or woolen material.	Star, anchor, bat or similar emblem suit- able for the garment.	Onting, tennis or gym work.

Supplementary work, embroidered table or dresser scarf, lunch cloth or fancy pillow- slips.	French embroidery, Cross-stitch drawn work, hemstitching, crocheting.	Butcher's linen. Art linen. Homespun linen.	Design carried out from design room.	Used for home decora- tion.
Woolen or cotton dress.	Commercial pattern according to style.			
Tailored skirt. Woolen material.	Flat tailored seams.	Material must be shrunken.		For fall term woolen dress is more suitable; for spring, the cotton.
Table linen.	Hemming and marking.	Initials, large and small.	Design room.	Old English is always good.
Study of textiles — cot- ton, wool, linen.	Preparation and use. Study of form and color.			
Supplementary work.				

Girls to choose as review work some garment made in preceding grade.

APPLIED DESIGN FOR GIRLS

The course in design offered the girls of the junior high school is planned to meet the requirements of the home in a general way. All problems are made as practical as possible and many designs are applied on articles used in the home.

Design is shown to be practical, useful, and essential to the best results in home making.

Stress is laid upon the selection of materials, choice of colors, and the intended use of the article, that the design may be appropriate to its purpose. The pupils are shown that designing means planning, and that it includes not only the decoration but the construction of the article as well.

APPLIED DESIGN 1-J

Project.	Purpose.	Principle Involved.	New Exercise.	Correlation.
I. Portfolio.	To hold unfinished work.	Band designs. Design conforms to structure.	Making, cutting, folding, pasting, cover design.	
II. Straight line designs.		Horizontal space division. Borders (repetition, alternation).	Hemstitching, weaving.	Towel (Ex. XVI in Sewing).
III. Lettering.	To be used whenever lettering is required.	Form of letters—portion.	Use of T-Square and Triangle.	
IV. Cards for sewing department.	To mark finished articles made in Sewing Room.	Spacing of letters and words.	Centering lettering on card.	With Sewing Dept.
V. Notebook.	To bind daily lesson leaves and finished work.	Vertical space division.	Making cover design.	

APPLIED DESIGN 2-J

Project.	Purpose.	Principle Involved.	New Exercise.	Correlation.
I. Portfolio or Color Chart—12 colors and gray.	To teach color. To show different colors—how made.	Mixing color. Judging value, intensity, and hue of color.	Making 12 normal colors and gray from the primary colors.	
II. Design for Nightgown with set-in sleeves, feather stitching, scallops, embroidery, or lace.	To teach good design and good taste in choice of lingerie trimmings.	Conform to structure. Appropriateness of design to garment.	Consideration of underwear design.	Sewing Room.
III. Simple initial for lunch cloth and napkin (large and small).	To teach good design and good taste in making table linen.	Proportion. Balance.	Making initials suitable to be embroidered.	Sewing Room.
IV. Cross-stitch design.		Borders or single units.	Sewing on cross-stitch canvas. Cross stitching.	Towel
V. Furnishing a kitchen.	To advise as to wall coverings, floor coverings, furniture, etc.	Sanitation. Simplicity. Necessary equipment.		The Home.

VI. Stencil (developed from simple leaf form).	To teach another method of developing a design.	Adaptation of simple forms.	Painting a stencil.	The Home.
VII. Above Ex. No. VI applied on useful article.	To show that a stencil is practical and how it is applied.	Fine spacing and accuracy in placing. Developing a stencil to fit a given space.	Painting a stencil.	The Home.
VIII. Curve of monotony.	First lesson in curve analysis.	Monotony.	Drawing circle free-hand.	Law of Margin.
IX. Curve of variety.	Second lesson in curve analysis.	Variety.	Drawing curve of force and ellipse.	
X. Bi-symmetric unit No. 1. (If possible sketch grass or leaves illustrating curve of variety).	Further to impress curve of force.	Bi-symmetry. Proportion. One part subordinate to another.	Drawing a four-part unit.	Suggestion for stencil or applique embroidery.
XI. Curve of beauty.	Third lesson in curve analysis.	Rhythm. Proportion.	Comparison of curves. Study of reverse curves.	

APPLIED DESIGN 2-J—(Continued)

Project.	Purpose.	Principle Involved.	New Exercise.	Correlation.
XII. Bi-symmetric unit No. 2.	Drill on reverse curves. Same as No. X.			Suggestion for stencil or applique embroidery.
XIII. Value scale (9 values).	To be used to test value of color when needed.	Painting.	Mechanical layout. Mixing color. Choosing values. Pasting.	
XIV. Leaves.	To show nature's relation to design.	Symmetry. Repetition. Filling of space.	Sketching. Development of unit. Application of unit.	
XV. Leaves.	Practical application of Ex. XIV.	Drawing in three values.	Making a template. Painting. Application to toweling, outlining, darning, and hem-stitching.	Towel (Ex. XVI in Sewing).
XVI. Furnishing a bedroom.	To advise as to choice of wall coverings, floor coverings, draperies, furniture, etc.	GOOD TASTE.	Designs of this term to be applied to room where possible.	The Home.

APPLIED DESIGN 3-J

Project.	Purpose.	Principle Involved.	New Exercise.	Correlation.
I. Portfolio or Princess slip design.	To develop good taste in underwear trimmings.	Design must conform to structure. Dominant and subordinate parts, center of interest.		Sewing Department.
II. Make six half neutral colors. (Cut out and add to color chart.)	To teach how colors are neutralized. Importance and use of neutral colors.	Value and intensity of color.	Neutralizing the primary and secondary colors by adding complementary colors.	
III. Class Pin.	To teach good taste and discrimination.	Simplicity, good taste and appropriateness of design.		
IV. Draw flower and leaves or fruit and leaves.	To develop observation and to make use of material offered by nature.	Sketching. Composition.		
V. Stencil. (Conventionalize previous exercise and develop stencil.)		Adaptation.	Making and cutting stencil. Application to some useful article.	The Home.
VI. Furnishing a Living Room.	To advise as to wall coverings, floor coverings, furniture, curtains, etc.	Good taste. Simplicity. Arrangement. Color.		The Home.

APPLIED DESIGN 4-J

Project.	Purpose.	Principle Involved.	New Exercise.	Correlation.
I. Portfolio or Color Intensity.	To teach that there are different degrees of intensity.	Intensity or brilliancy of color. "Value" of color.	Making a color a given "value" and "intensity."	
II. Luncheon Set.	To develop good taste.	Simplicity, Repetition. Bisection of lines and angles. How to divide a circle into four, six or eight equal parts.	Consideration of design applied to table linen.	May be worked out at home.
III. Initial and Monogram.		Balance. Harmony. Design should conform to structure.	How to make a monogram.	May be applied.
IV. Talk on china.	To develop good taste.	Kind of design appropriate to china decoration.		Cooking Department.

V. Plate Design	Further to impress the fact that china decorations do need consideration.	Kind of decoration. Proper placing of decoration.	Consideration of the design and coloring suitable for china.	Dining Room.
VI. Talk on color schemes for luncheons and dinners.	To teach how color schemes are worked out.	Harmony.		Dining Room.
VII. Make place card and favor for luncheon.	To develop originality and individuality.	Consideration of color scheme.	Making of cards and favors.	Dining Room.
VIII. Furnishing a dining room.	To advise as to the wall coverings, floor coverings, and necessary furniture.	Suitability to purpose.		The Home.



MILLINERY ROOM.

MILLINERY

1. The stitches—running, back, overcast, feather, underhem, stab, saddler's, slip or bind, lacing.
2. Making patterns for rice net frames.
 - (a) Paper folding.
 - (b) Drafting.
 - (c) Taking patterns from hats.
3. Cutting from the pattern.
4. Bracing the frames.
5. How to make a dome or round crown.
6. Covering frame with velvet.
7. Sewing crown to brim.
8. Cutting bias and making folds.
 - (a) Plain.
 - (b) Corded.
 - (c) Shirred.
 - (d) Plaited.
9. Making bows and rosettes.
10. Renovating flowers, feathers, velvet, silk, and ribbons.
11. Trimming and lining the hats for the various seasons.
12. Straw hats.

Straw braid sewed on rice net or wire frames and trimmed according to season.

INDEX

Admission, Terms of	9
Algebra	55-57
Applied Design	76, 118
Applied Design for Girls.....	118-125
Arithmetic	50-52
Arithmetic, Commercial	71
Bench Work	77, 80, 84, 86
Bookkeeping	68
Cabinet Making	81, 87
Choice of a Course	8
Commercial Course	13
Commercial Subjects	67-71
Constructive English	16-22
Courses of Study (outlined)	11-13
Domestic Art	107-117
Domestic Science	101-104
Drawing, Freehand	65
Drawing, Mechanical	93-96
Electric Wiring	100
English Course	11
Function of the Junior High School.....	5
Geography, General or Applied	64-65
German	37-43
German Course	12
Graduation	9
History	58-63
Industrial Course	13
Latin	44-49
Latin Course	12
Literature	23-31
Manual Training	75-100
Mathematics	50-57
Millinery	129
Music	67
Oral English	32-33
Pattern Making	87
Penmanship	71
Physical Education	66
Physics, Applied Elementary	97-100
Physiography	65
Records	10
Sheet Metal Work	89
Shop Work	76
Shorthand	70
Study of English	14-33
Typewriting	69
Wood Turning	80, 82, 83, 85



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